A

TREATISE

ON THE

HYDROCELE:

CONTAINING

AN EXAMINATION

OF

ALL THE USUAL METHODS OF OBTAINING RELIEF

IN THAT DISEASE.

THE

RADICAL CURE BY INJECTION

IS PARTICULARLY DESCRIBED, AND ILLUSTRATED WITH

CASES.

THIRD EDITION,

WITH NOTES AND ADDITIONS.

BY

SIR JAMES EARLE, F.R.S.

Surgeon Extraordinary to the King, and to His Majesty's Household;

Senior Surgeon to St. Bartholomew's Hospital.

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1805.

To the Right Honourable

THE EARL OF ROSEBERRY,

&c. &c. &c.

My Lord,

THE honor of your Lordship's acceptance of the following treatise is highly gratifying—yet more so, being accompanied with permission to say that the mode of cure recommended in it is sanctioned by your Lordship's own experience of its efficacy. A permission which could only be dictated by genuine sentiments of Philanthropy, surmounting every other consideration.

I have the honor
with the

My Lord,

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Serfojee Rajah. 1829

PREFACE.

A TREATISE ON THE HYDROCELE, in which is defcribed a method of cure, which appeared to me preferable to any I had known practifed in this country, was publifhed in the year 1791. It met with a very extenfive circulation; and I have great fatisfaction in knowing that, prejudice and the objections which were raifed againft it having given way to the many proofs in its favor, it has been adopted as a remedy almoft univerfally.

Of

Of a ſecond impreſſion, to which an appendix was added, few, if any, remain in the Bookſellers' hands; and as there may ſtill be practitioners unacquainted with the proceſs and its ſalutary effects, I am perſuaded that the ſubject is of too general concern to be ſuffered to continue out of print, and am therefore induced to bring forward another edition.

When firſt I introduced it to public notice, it was thought proper to ſupport it by all the caſes which had then occurred, with a minute account of the operation and all its conſequences. Of theſe caſes I therefore gave a deſcription of ſixty-one. I could now, were it neceſſary, make an addition to that number of more than four hundred, which under my immediate care and

inſpection

inſpection have been perfectly and radically cured by the ſame gentle means; but the method is now ſo well eſtabliſhed, that I conceive it unneceſſary to ſwell the volume with more than appeared in the former edition. Moſt of theſe, the original proofs, having been drawn up with more attention to progreſs and ſymptoms than has been ſince thought requiſite, and having received additional confirmation from the time elapſed ſince they were performed, will be here repeated, and ſome variations only, or peculiar circumſtances, which have ſince occurred, will be added.

My only Antagoniſt, at leaſt the only one I know of, I have reaſon to think is by this time ſatisfied with the mode of cure by injection, having heard nothing from him

ſince

ſince my anſwer to his remarks, which is in a preface to the ſecond edition; and which I ſhould not think neceſſary to be added to this, but that it contains ſome circumſtances of conſequence to the well-performing the operation, and points out many objections to that which he warmly patronized; it will however more properly come in as a poſtſcript, that Gentleman's remarks, being a critique on the work itſelf, and referring to a method therein deſcribed.

A

TREATISE

ON THE

HYDROCELE.

IN my edition of the works of the late Mr. Pott was inferted an account of a method of curing the Hydrocele, which appeared to me preferable to any which I had known practifed in this country; but it having been fuggefted that the fuccefs of the operation was fcarcely fufficiently eftablifhed by the cafes which were there exhibited, and the fubject being of importance to a confiderable part of mankind, I have been induced to refume it, and to relate what further obfervations on it have occurred.

My former tract, being joined to Mr. Pott's comprehensive account of every species of Hydrocele, rendered superfluous any other introduction; but this, not having the same advantage, requires some previous description of the disease itself; though it may not be necessary to enter very deeply into what has been repeatedly discussed by more able writers, and is now pretty generally understood.

The researches after a safe, easy, and effectual cure for the Hydrocele have exercised the ingenuity of many practitioners, and a variety of methods have been adopted; these, I presume, it will not be unuseful to collect and bring into one point of view, to give some account of the rise and progress of each, and to examine their respective merits and defects.

The term Hydrocele is usually applied by surgeons to that species of swelling in the

ſcrotum which is formed by an accumulation of a watry fluid; it is a diſeaſe to which all deſcriptions and conditions of men are ſubject, from the earlieſt infancy to the lateſt age, and to which the healthy, the infirm, the weak, the robuſt, the voluptuous, and the abſtemious, appear to be equally liable. The original cauſe, in ſome inſtances, may be traced, but generally is not to be diſcovered. A blow, or a contuſion, has been often known to produce it; ſometimes it is ſubſequent to a hernia humoralis: the moſt common cauſe perhaps is relaxation, as appears from the frequency of it in warm climates.

There are varieties, in the ſituation and appearances of the Hydrocele, which have been noticed by ſeveral writers. A collection of fluid is ſometimes formed in the courſe of the ſpermatic veſſels, which is denominated the HYDROCELE of the SPERMATIC CHORD, and this has been divided

into two kinds, one of which being an extravaſation of lymph, diffuſed through the cellular ſubſtance of the ſpermatic veſſels, is called the Hydrocele of the cells of the tunica communis.

When this diſeaſe is ſimple it is perfectly local, that is, it is confined entirely to the membrane forming the tunica communis, and does not at all affect either the dartos, the tunica vaginalis, or any other part: while it is ſmall it gives little trouble, and often paſſes for a varix of the ſpermatic chord; ſometimes it ariſes to ſo large a ſize, and gets into ſuch a ſtate as to become an object of ſurgery.

If the extravaſation be confined to what is called the ſpermatic proceſs, the opening in the tendon of the abdominal muſcle is not at all dilated, and the proceſs paſſing through it may be diſtinctly felt; but if the cellular membrane which inveſts the ſpermatic veſſels within the abdomen be affected, the tendinous

dinous aperture is enlarged, and the increaſed ſize of the diſtended membrane paſſing through it, produces to the touch a ſenſation not very unlike an omental rupture.

As it is not probable that this complaint can be cured by the ordinary methods of treating the common Hydrocele, it is not properly the ſubject of our preſent enquiry. Mr. Pott has mentioned the inciſion as the only method of cure which it admits, and which, he obſerves, is far from being void of hazard.

The other ſpecies of the diſeaſe has been called the ENCYSTED HYDROCELE of the TUNICA COMMUNIS.

This, like the preceding complaint, has its ſeat in the tunica communis, or cellular membrane which inveſts the ſpermatic chord, with this difference, that in the former the fluid is diffuſed through the cells of the membrane; in this it is collected in one cavity or bag, which is formed, as the coats

of encysted tumors usually are, by pressure and condensation of the common membrane. It most frequently possesses the middle of the spermatic process between the testicle and groin; its growth is gradual, and when of the size of the testicle, forms with it the outline of the figure of 8, beyond which period it varies in size and form, being sometimes oblong, though commonly continuing globular; whether it be large or small it is generally pretty tense, and the fluctuation of the water not easily perceptible. When lightly struck on with the finger it gives the sensation of a bladder distended with air, and has been mistaken for a species of pneumatocele, or wind rupture, a disease which does not exist; it gives no pain, nor unless it be very large, does it hinder any necessary action. It is perfectly circumscribed, and has no connection with the cavity of the tunica vaginalis below, or the abdomen above. The testicle with its epididymis may

be distinctly felt below the tumor, and is absolutely independent of it; and the upper part of the spermatic chord may generally be distinguished above it: it undergoes no alteration from change of the patient's posture, and is not affected by the action of the abdominal muscles in coughing, sneezing, &c.

These marks sufficiently describe the complaint, while it is simple and uncombined with any other; but when it is accompanied with a hernia, or a Hydrocele of the tunica vaginalis, it becomes more complex, and when the pressure from above or below is considerable, the nature of it sometimes cannot be precisely determined till the other complaints are removed; that is, till the contents of the abdomen are returned into their proper cavity, or the tunica vaginalis is emptied.

These are the diseases for which it is most liable to be mistaken; but, as was observed,

it is eaſy to be diſtinguiſhed from the Hydrocele of the tunica vaginalis by the teſticle being perceptible in its natural ſtate below it; it ſometimes indeed preſſes ſo high upward as to make it impoſſible to feel the ſpermatic chord above it, which gives the appearance of a deſcent from the abdomen: however, abſence from every ſymptom of confinement of the inteſtinal canal, and the diſtinguiſhing ſymptoms and marks which have been noticed, will be ſufficient to point out the true nature of this ſpecies of the diſeaſe, which does not very often occur.

The ordinary or moſt common kind is the Hydrocele of the Tunica Vaginalis, being formed between the coats which envelope the testicle; theſe are well known to be two only, the tunica albuginea, which is the immediate and proper covering of its vaſcular ſtructure, and the tunica vaginalis, which is a continuation of the

the ſame membrane, but being reflected forwards, looſely inveſts the teſtis and the greater part of its epididymis, without any connection except in the hinder part*. On the ſurface of theſe, as on every membrane which lines the various cavities in animal bodies, there is a conſtant ſecretion of a fluid which prevents any coheſion, and permits the eaſy motion of contiguous parts: this fluid is uſually kept from increaſing beyond what is neceſſary for the above purpoſes, by veſſels deſtined to abſorb the redundancy. If either of theſe offices be not duly performed, that is, if the ſecretion and abſorption do not keep pace with each other, an alteration in the ſtate of the parts muſt be the conſequence: if either the fluid be ſecreted too faſt, or, what perhaps is moſt commonly the caſe, the powers of the abſorbent veſſels

* For a more particular deſcription of the ſtructure of theſe parts, vid. Pott on the Hydrocele.

fail,

fail, a tumor is formed which gradually becomes more and more perceptible as the collection increaſes, and conſtitutes the Hydrocele.

The ſize and appearance of the tumor vary in different perſons and under different circumſtances. At its beginning is uſually rather round, but as it increaſes, if it meets with no resistance, generally aſſumes a pyriform figure, with its larger extremity downward; the nature of membranes being to ſtretch and accommodate themſelves to gradual diſtention, it ſometimes increaſes to an enormous bulk, reaching in ſome caſes almoſt to the knees. If the tumor in its growth meets with reſiſtance, as from a tight ſuſpenſory bandage, it ſometimes takes a lateral direction ſo as to reach toward the groin on one ſide and into the oppoſite ſide of the ſcrotum on the other.

It is perfectly indolent in itſelf, though its weight does ſometimes produce a ſmall

degree of uneaſineſs in the back. The tranſparency of the tumor, which is mentioned by ſome writers as a characteriſtic of the diſeaſe, is not always diſcernable, being frequently prevented in adults by the thickneſs of the tunic and ſcrotum, and ſometimes by the opacity of the contained fluid. In infants, the thinneſs of theſe parts and the clearneſs of the water almoſt always ſuffer the rays of light to paſs through. In ſome caſes it is ſo diſtended as to be hard and almoſt incompreſſible; in others, though the Hydrocele may have been of long ſtanding, it is ſo ſoft and lax that the teſticle is eaſily perceptible; if the tunica vaginalis be thin, the teſticle may be perceived; but if the tunic be firm, or thickened, the teſtis often cannot be felt diſtinctly, though to an intelligent obſerver, there is almoſt always a ſenſation where the teſticle is connected, ſufficient to direct where a puncture ought not to be made: this is a point of the

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utmoſt conſequence to be aſcertained, as a wound of the body of the teſtis would not only miſs of evacuating the water, but would be productive of the moſt dangerous conſequence. The uſual place where the teſtis is fixed is in the poſterior and middle part of the tumour; if the ſwelling be not very large, it is rather towards the bottom; but as this ſometimes varies, the ſituation of it muſt be determined by the tactus eruditus of the examiner, and will be diſcovered by the firmneſs and hardneſs ariſing from the body of the teſtis, together with its appendage the epididymis, being of a denſer or more ſolid texture than any of the contiguous parts. In every part of the tumor, the two membranes being unconnected, and affording a void ſpace for the collection of water, the difference will always be diſtinguiſhable.

In moſt caſes of Hydrocele the ſpermatic veſſels may be diſtinctly felt above the

tumor,

tumor, which is the firſt mark of the diſeaſe to be attended to; it however ſometimes happens that the accumulating water meeting with reſiſtance below, riſes into the ſuperior part of the tunica vaginalis, and diſtends it quite up into the ring of the abdominal muſcles, ſo as to make extremely difficult, if not impoſſible, to feel the ſpermatic proceſs. This circumſtance throws an obſcurity on the nature of the caſe, and confounds it with the appearance of a deſcent of inteſtine, or omentum; other ſymptoms and marks are then to be adverted to: in the hydrocele the tumor can never be made to diſappear by any poſition of the body, or any preſſure of the hand; but in the hernia ſcrotalis, unleſs it be adherent, or incarcerated, the tumor may be returned into the cavity of the abdomen by gentle preſſure on it, aſſiſted by a favourable or horizontal poſition of the body. Or in caſe it cannot be returned, the patient being

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directed to cough, a protrusion from the abdomen may generally be discovered by the impulse which it receives from the action of the abdominal muscles; from which the Hydrocele being unconnected with the contents of the abdomen, is wholly exempt.

The history of the case often helps to point out the difference between the two diseases, the Hydrocele begins below, the hernia above. Too great attention cannot be given to every mark of discrimination, as a mistake of one for the other might prove fatal.

It is sometimes difficult to distinguish the Hydrocele from a diseased and enlarged testis, particularly when the texture of the gland is become loose, or when there is some fluid in the body of it, which often happens; the feel of the tumor is then precisely that of a Hydrocele. Other circumstances however there are which generally

lead to determine its true nature; the greater proportionate weight of the tumor, the varicous ſtate of the veſſels, the inequality of the ſurface, and the painful ſenſation which uſually attends the examination, or handling a diſeaſed teſticle, are diſtinguiſhing marks of it.

A collection of water frequently accompanies a ſchirrous enlargement of the teſticle, and in ſuch caſes is probably cauſed by it; but a ſimple Hydrocele will not produce a diſeaſe in the teſticle. Some degree of enlargement of the parts indeed we generally find accompanying Hydroceles, particularly thoſe of large ſize and long duration; but this is not diſeaſe, it is probably only the effect of the continued preſſure of the accumulating water. It is the nature of membranes to thicken in proportion to the reſiſtance which they are obliged to make. We find this evidently in the tunica vaginalis, which uſually grows in

thickneſs as it becomes more diſtended, and we may reaſonably conclude, that the tunica albuginea is thickened by the counter preſſure from the ſame cauſe, which will give an apparent enlargement to the body of the teſtis: when the preſſure is removed by diſcharging the water, and its return prevented by the radical cure, provided too great inflammation has not been excited by the operation, the teſtis appears to grow ſmaller at the termination of the cure than when the water was evacuated. This effect muſt be produced by both the tunics becoming thinner and more contracted, and is a ſort of proof of the fact being as I have ſtated, that the moſt frequent increaſe in the ſize of the teſtis in Hydroceles ariſes from the thickening of the tunics, and that it is cauſed by preſſure: the ſame effect is produced in the peritonæum in caſes of the aſcites, and ſtill more evidently in hernial ſacs, in which great diſtention cauſes it to

grow

grow thick and hard; fluids, collected in the ovaria, in the cavities of joints, in the thecæ of tendons, and I believe may be added, in every part of the body, have generally the ſame effect to a certain degree, beyond which indeed the efforts of nature, to get rid of the contents, cauſe the parities to become partially thin.

A ſlight enlargement therefore of the parts is not a prohibition to the radical cure of a Hydrocele, though a cancerous or ſchirrous ſtate of the teſtis certainly is, as it would be highly imprudent and unſafe to irritate and inflame an already diſtempered gland.

Conſidering then the diſeaſe as a ſimple, well defined Hydrocele, which, though not a painful complaint, is obſtructive to the exertions of the indigent and laborious, a conſiderable impediment to the active pleaſures of the opulent, and is found to be ſo unſeemly, inconvenient and troubleſome by all, as to demand the aſſiſtance of ſurgery;

we will next proceed to examine the various means which have been practiſed for its relief.

THE PALLIATIVE CURE.

The evacuation of the water is ſufficient to remove the preſent inconvenience ariſing from diſtention, and ſhould in general be performed at leaſt once on thoſe who determine to undergo a radical cure, as it gives an opportunity of examining the ſtate of the teſtis, and alſo of permitting the cavity to be filled again, only to ſuch a ſize as may be thought to be beſt calculated to inſure ſucceſs in any future operation.

The palliative cure conſiſts in drawing off the water by a puncture made through the ſcrotum and tunica vaginalis; for this purpoſe ſome have preferred the lancet, others the trochar. I make no ſcruple in recommending the latter, as it completely evacuates the water with eaſe and expedition.

When

When the wound is made by a lancet, nothing is left to maintain a communication between the opening in the ſcrotum and that of the tunica vaginalis, conſequently the water is often either prevented from coming out of the ſac at all, or it eſcapes into the cellular membrane, and cannot find the paſſage through the ſcrotum; to obviate this, the practitioner, as I have often remarked, is obliged to introduce a probe, which cannot always be readily effected, and makes the operation painful and tedious. The only reaſon for doing it with a lancet, which, in my opinion, can obtain, is when there is any doubt of the nature of the caſe, or the ſituation of the teſtis; under ſuch circumſtances a ſmall inciſion may certainly be conducted more ſuperficially, and with leſs hazard, by means of a lancet than by a trochar: but when no ſuch circumſtances exiſt, the trochar is preferable. The beſt method to do the operation is to graſp the

upper part of the tumor with the left hand, as tight as can be without giving pain, then to plunge a ſmall trochar into the anterior part of it, rather lower than the middle, the finger being previouſly applied to the cannula to regulate the preciſe depth it is to penetrate, and any blood veſſel which may be viſible being carefully avoided. The ſtilet is then to be withdrawn, and the cannula left till the water is evacuated.

I have never found a patient, who has undergone both theſe operations, chooſe again to ſubmit to the lancet; they are, however, both eaſily practicable by any one who is acquainted with the ſtructure and ſituation of the parts concerned; and the evacuation of the water, as was obſerved, affords a temporary relief; but the neceſſity of the frequent repetition of it, from the almoſt conſtant return of the complaint, the inconvenient magnitude which the tumor muſt attain before it can ſafely be attempted,

attempted, with the danger, and ſometimes pain, attending the diſtention, render the producing a permanent cure a moſt deſirable object.

The methods which have been employed for the radical cure of the Hydrocele are many: in giving an account of them I ſhall follow the order in which they are laid down by the learned Monſ. Sabatier. Indeed this gentleman has conſidered the ſubject with ſuch accuracy, that little can be ſaid with regard to the hiſtory or deſcription of them, which is not to be found in his excellent memoir.

The operations may be reduced to ſix principal ones; the inciſion, the exciſion, the cauſtic, the tent, the ſeton, and injections.

THE INCISION.

An inciſion through the whole extent of the Hydrocele, ſo as to bring the naked teſtis

testis completely into view, is the most ancient operation we have any account of; it was practised even before it was known that the complaint was susceptible of a palliative cure. Galen was the first who mentioned that it might be relieved by evacuating the water through a cannula, introduced by means of a puncture; but Celsus, who preceded him by about a century, described the operation of incision. The operation, he observes, should be done on the scrotum at the time it is most full, and the fluid most abundant, and when the patient is adult. When the water is in small quantity, or the subject is young, the operation should be performed in the groin, after having raised the tumor towards that side; it is not sufficient to evacuate the water, but part also of the coats which contain it should be removed; the wound should be cleansed and washed with water in which salt and nitre are dissolved. This is all

which Celſus ſays on the ſubject. It is not very clear whether or not he means that the inciſion ſhould be made the whole length of the tumor, and how the dreſſings were applied we are left to conjecture, unleſs he deemed it unneceſſary to repeat the directions which he had given in another place, particularly in cap. 19, lib. 7, where he has deſcribed at length the method of treating wounds after any operation of inciſion into the ſcrotum.

Paulus Egineta is much more exact in this reſpect; he omits no precaution which may be neceſſary to enſure the ſucceſs of the operation. The patient, he ſays, ſhould be placed on his back, his loins ſuſtained by pillows, and the ſcrotum by a ſponge placed underneath. The inciſion is to commence at the middle of the tumor, and to be carried to the upper part of it, in a line parallel to the raphè. This inciſion is only to go through the teguments; the bag which con-

tains the water is then to be opened, and part of the fides of the fac to be taken away; after which a director is to be introduced, and conveyed to the bottom of the fcrotum, and a divifion is to be made to the bottom, that the difcharge of blood and matter may find a free exit: the cavity is to be filled with lint, and the neighbouring parts and the belly are to be fomented; when the wound is cleanfed, and partly incarned, the lint is to be leffened, and fimple dreffings continued till the whole wound is healed.

Albucafis defcribes the incifion with the fame exactnefs, and almoft in the fame terms; but he adds two very material circumftances; the firft is, that, after this method of treatment, the Hydrocele is liable to return, the fac not being deftroyed; and the other is, that the teftis fometimes efcapes out of the lips of the wound. Great care, he obferves, fhould be taken to return it, and keep it in its place. This accident depends

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on the retraction of the ſides of the ſkin, and of the membrane which contained the water; for the teſtis itſelf ſhews no diſpoſition to leave its original ſituation, and can only give way to the action of the parts which ſurround it: nevertheleſs, the precept which Albucaſis gave is very important; and we meet with the ſame caution in other authors.

Since the end of the eleventh century, when he wrote, we find no mention of this method for a great length of time; practitioners recommended others, as, the cauterization of the ſac, the uſe of the tent, and of the ſeton. Hildanus firſt reſumed the cure by inciſion, and appears to have practiſed it; the ſixty-ſixth obſervation of the fourth century is a proof, and furniſhes at the ſame time an example of the ſucceſs which attended it. The patient was forty-five years of age, of a robuſt conſtitution; he had long been ſubject to a Hydrocele of

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ſuch bulk as to be very incommodious to him. After the proper preparation, an inciſion was made through the teguments, the tunica vaginalis was brought into view, and was then divided through the whole length: the cavity was filled with a large tent, which was placed the whole length of the teſtis to the bottom of the ſac. The patient recovered. Hildanus obſerves, that this method ſhould be uſed with great circumſpection, as it is ſometimes followed with ſerious conſequences, which put the patient's life in moſt imminent danger.

This is not the only author who has ſeen bad conſequences from the operation by the inciſion.

Dodonæus cites a caſe in which the inciſion was followed by gangrene, and cauſed the death of the patient.

Wiſeman, one of the diſtinguiſhed ſurgeons of the laſt century, obſerves, that it is often followed by colic, fever, hiccough,

and

and gangrene, when the patient is of a delicate conſtitution.

Mr. Cheſſelden, who was by no means a timid operator, ſays he has done the operation by inciſion, and ſeen it done by others; but never thought the cure worth the trouble and pain the patient muſt neceſſarily undergo.

According to Heiſter's account the curatio perfecta, by which he means the inciſion, confines the patient many weeks to his bed, is painful, and in ſome meaſure dangerous.

We find alſo inſtances, in the moſt modern authors, in which this operation has been the cauſe of very ſerious conſequences.

Mr. Sharp, in his treatiſe on operations, relates two caſes where the inciſion produced very dangerous accidents. The firſt is in a man of a robuſt and good conſtitution, whoſe Hydrocele was opened the length of four inches. In the evening, after the operation,

he

he had a fever; the ſcrotum and teſtis began to inflame and tumefy; the patient felt ſevere pains in the region of the loins: from the third day to the ſeventh he was in great danger till the ſuppuration appeared to be eſtabliſhed, after which he grew better; but the teſticle ſuppurated, and a large quantity of matter was formed. The diſcharge did not begin to diminiſh till the twenty-fourth day; adheſions were then formed between the teſticle and the membranes of the ſcrotum, and the forty-third day the wound was entirely healed.

In the ſecond caſe there was alſo a violent ſymptomatic fever, which terminated in an abſceſs in the teſticle; the patient, who was only eight years old, very narrowly eſcaped with life.—On the whole, he concludes, that both inciſion and cauſtic are attended with ſo much danger, that, notwithſtanding the ſucceſs in the end, he believes whoever reads the caſes will be inclined to reject both methods,

methods, and abide rather by the palliative cure; and again, that he has known a few examples in favour of the operation, but by no means enough to warrant the recommendation of it, unless to such persons as are inconsolable under the disorder, and are willing to suffer any thing for a cure.

Mr. Warner observes he has never seen any fatal consequences arise from the incision; but advises that it should only be practised upon those who are of a good habit of body, and who have not exceeded the middle stage of life.

The authorities which have been quoted are certainly adverse to the operation of incision; but to treat it with that impartiality which I would wish to preserve, it is proper to remark, that it has been practised by surgeons of the first reputation and abilities, and that it is still preferred by some ingenious practitioners among the moderns to the seton or caustic.

Mr.

Mr. Bell, in his Syſtem of Surgery, after having enumerated all the methods which have been employed for the cure of the Hydrocele, has reduced them to three as now generally in uſe, the inciſion, cauſtic, and ſeton; of theſe he prefers the inciſion: but his account does not convey a very favourable impreſſion of either of them, as he ſays "he has ſeen all the three methods produce troubleſome ſymptoms, ſuch as great pain and tenſion of the abdomen, inflammation and fever: and again, if *either* of them be practiſed on perſons otherwiſe diſeaſed, on old people, or of infirm habits of body, the ſymptomatic fever is apt to run too high for the ſtrength of the patient, and the ſuppuration, produced by a high degreee of inflammation, tends afterward to deſtroy entirely the remains of a conſtitution already much impaired."

The ſame writer recommends the inciſion to be performed in caſes where, from acci-

dent, the Hydrocele is burst, and the water is diffused in the cellular membrane under the scrotum: his words are, "Instances of the scrotal anasarca of a local nature have also occurred from the rupture of the Hydrocele of the tunica vaginalis testis; when this species of Hydrocele arrives at a great size, jumping from a height, or a violent blow or bruise of any kind, will readily burst it, and the water not finding a passage outwardly must necessarily diffuse itself over the whole scrotum. Different instances of this kind have been met with, two of which are related by Douglas; and the same kind of swelling has been produced by the water of a Hydrocele of the vaginal coat being improperly drawn off by the operation of tapping. When the orifice in the skin is allowed to recede from the opening into the vaginal coat before the water is all discharged, the remainder of the collection is very

very apt to diffuse itself through all the cellular substance of the scrotum.

"In whichever of these ways the swelling is produced, the cure ought to consist in laying the tumor sufficiently open, not only for evacuating the diffused water, but for effecting a radical cure of the Hydrocele of the tunica vaginalis."

Here I must take the liberty to observe, that I have seen and could enumerate many instances of the accident of large and much distended Hydroceles being burst by blows against the pummel of a saddle, by falls from horseback, and other causes. I have known several times the cannula of a trochar slip out of the tunica vaginalis, and permit the water to run into the cellular membrane under the scrotum; but I never saw a single instance of the kind where the extravasated fluid was not perfectly and totally absorbed, in a very small space of time, without the

necessity of incision, puncture, or any other operation. After which the Hydrocele again increased, as if the palliative cure alone had been performed, and became by degrees fit for a radical operation. So that, if the incision in this case be used for evacuating the diffused water, I apprehend it to be wholly unnecessary: and if it be intended to effect a radical cure of the Hydrocele, while the tunica vaginalis is in a collapsed state, and the cellular membrane of the scrotum loaded with water, probably also inflamed by the distention, it must surely be a most improper time to undertake it; and I should conceive, few practitioners would think it right to perform such an operation under such circumstances.

When Mr. Pott first published on the Hydrocele, the incision was the most usual mode of obtaining its cure, and consequently came in for its full share of description in his general treatise on that complaint; from

thence, however, it has been inferred, that he was the patron or adviſer of that operation; but, though he gives an accurate account of the method of performing it, and preſcribes the beſt means of avoiding the evils which frequently ariſe from it, whoever will carefully conſider the whole of his account, muſt obſerve the caution with which he ſpeaks on the ſubject; that he excludes the unhealthy and infirm, and only thinks it practicable on the young and vigorous; and he remarks, that it can never be ſaid to be totally void of danger, and that it bears the appearance of an operation of ſome ſeverity. On the whole, it clearly appears that he was not ſatisfied with it, and the fact is, that he did not perform it during the laſt twenty-ſix years of his life.

When I firſt engaged in the profeſſion, the operation by inciſion for the cure of Hydroceles, was the only one employed at St. Bartholomew's, and indeed was the method

thod almoſt univerſally practiſed. I muſt confeſs I took an early and deep rooted diſlike to it, which more mature obſervation and experience have not in the ſmalleſt degree removed, having always remarked it to be extremely ſevere in the execution, and that great tenſion, pain, and fever, are generally its immediate conſequences; after which the progreſs of the cure is often ſlow and tedious, requiring in ſome caſes, though under the care of the ableſt practitioners, many months for its completion.

The bad ſymptoms which have attended this operation, have been attributed to the difficulty with which membranous parts ſuppurate; on which account it has been adviſed to touch the tunica vaginalis with gentle eſcharotics, in order to bring on a ſuppuration. It has been alſo recommended to ſcarify it to promote its exfoliation.

That the operation of inciſion, according to the method in which it has been uſually

practifed, may prove a radical cure of the Hydrocele, the whole interior furface of the fac muft fuppurate and granulate. That it is not calculated to procure an union by the firft intention, as has been fuggefted, muft be evident, for whether the cavity be filled with lint, farinaceous matter, or any other fubftance, the coats are equally prevented from immediate union; after which, the next procefs which nature adopts in order to unite contiguous parts muft take place, and if the cavity be not filled up with granulations, or if any part remains which does not contract an adhefion to the tefticle, a new collection of fluid may take place, and thus the complaint be renewed. Albucafis mentions the poffibility of this, and it has been confirmed by the experience of the moderns. Many inftances have been produced of this fact having happened after the wound has been healed. Mr. Sabatier mentions a cafe in which a collection took

place on each ſide of the cicatrix after it had been firmly eſtabliſhed, and required to be let out by two inciſions; and another inſtance in which the patient ſubmitted twice to the operation by inciſion, which were both done by a very able ſurgeon; but the water collected again, and he was afterwards obliged to ſuffer the ſides of the ſac to be taken away before the cure was completed.

I have lately ſeen a gentleman, who underwent the inciſion in Ireland, in whom a collection of water was again formed in the ſame part, and ſuch was his dread of what he had ſuffered from the operation, that he permitted it to increaſe to an enormous ſize before he would ſubmit to any other means for his relief*.

* Since theſe obſervations were firſt publiſhed, I have ſeen three caſes, in which the operation of inciſion failed to produce a permanent cure.

EXCISION.

It is commonly ſuppoſed that the exciſion of the ſac of a Hydrocele is as ancient as the inciſion. Celſus is ſaid to have clearly deſcribed it. It is true that this author, after having recommended to take away a part of the bag in which the water is contained, ſays, if the complaint has its ſeat under one of the interior coats of the teſticle, an inciſion through the ſcrotum ſhould be made, to lay the tumor bare, and to extirpate it intire; at leaſt this appears to be the meaning of the Latin text, which is not always perfectly intelligible—ſi ſub mediâ imâve tunicâ, totæ hæ extra ſcrotum collocandæ, excidendæque ſunt. But can Celſus mean that we ſhould take away the whole of the tumor, and conſequently that the teſticle ſhould at the ſame time be extirpated? or that we ſhould only remove the membranes which ſerve for the coat or

covering

covering of the Hydrocele? This it is difficult to determine, but in another place he clearly recommends preserving the testicle. 'Purgatus ita testiculus, per ipsam plagam cum venis & arteriis & nervo suo leniter demittendus est, lib. vii. cap. 19; and still more particularly in a passage of the same chapter before quoted. On the whole, I am perfectly satisfied that Celsus means to dissect off as much of the sac, wheresoever it shall be situated, as can be done consistently with the preservation of the testicle, and expressly with a design to obliterate the cavity, that there may be no future lodgment for a fluid.—Galen, who followed him, is of opinion that the part affected should be taken away with the disease.—Albucasis appears to be the first who has unequivocally described the excision. When the teguments have been divided, he says, we must dissect and open the membrane, and let out the water, after which "incide syphac qualiter-

cumque eſt poſſibile tibi incidere ipſum aut cum totalitate ſua, aut fruſtatim, præcipue ejus latus ſubtile, nam ſi non exquiſite perſcruteris in inciſione ejus non fit ſecuritas quin aqua redeat. Si autem procedit ovum exterius a cute ſua, in horâ operationis tuæ, tunc, quando compleveris ſectionem ſyphac, reduc ipſum."—This laſt circumſtance is deciſive; if the teſticle is forced out of its ſituation during the operation, it ſhould be replaced after having taken away the membranous production which contained the water. It is clear then that Albucaſis did not adviſe the extirpation of the teſtis, he only preſcribed the exciſion of the ſides of the bag which forms the Hydrocele.—Fallopius recommends the ſame method, which he mentions as an invention of an old date; however he thinks it only applicable to particular Hydroceles.

Although the exciſion is clearly deſcribed by Albucaſis and Fallopius, it is not again taken

taken notice of till we meet with it among the moderns; either it was not underſtood, or it was deemed too difficult and too cruel to be executed.

We find ſome of the French writers recommending the exciſion of part or the whole of the ſac, when it has been much diſtended or is much thickened and hard.

Mr. Douglas has aſſerted that the exciſion of the ſac is the only method which ought to be uſed, if we are obliged to uſe a cutting inſtrument for the cure of the Hydrocele; he ſeems to have been determined in this opinion by the bad ſucceſs which attended his firſt operation by the inciſion; his patient had very alarming ſymptoms, ſuch as great pain, inflammation, fever, and a tumefied hardneſs of the cyſt. Theſe ſymptoms were not abated till the cyſt was ſcarified through its whole extent, and in a manner divided into ſlips. The ſeparation of theſe ſmall portions being eaſily accom-

plished,

plifhed, Mr. Douglas thought he fhould fucceed better if he took away the whole of the cyft; he foon had an opportunity of trying this new method, and it was attended with all the fuccefs which he expected. The fymptomatic fever which followed was lefs, the treatment more fimple, the cure completed in lefs time, and a return of the complaint impoffible. The method in which Mr. D. advifes the operation is as follows: The patient being properly placed, two incifions were to be made in the fcrotum forming an oval, and reaching from the upper to the lower part; this oval portion to be diffected off, after which an opening was to be made in the fac, and enlarged by fciffars; the tunica vaginalis was then to be extirpated entirely, clofe to where it is connected with the fpermatic veffels; an affiftant fupporting the tefticle during the operation, and afterwards replacing it in its proper fituation; the cavity is then directed

to

to be filled with dry lint.—Mr. D. directs the oval piece of ſkin to be diſſected off before the opening in the tunic was made, becauſe he had been embarraſſed in a former operation in which he had omitted it; the lips of the wound turning in, he was not able eaſily to get at the internal part of the tumor to diſſect off the tunic; he recommends great caution not to injure the teſticle or ſpermatic veſſels.

This operation, though followed by Mr. White of Mancheſter, and many other ſurgeons of eminence and character, muſt have been tedious, and exquiſitely painful in the performance; and, from the manner in which it was directed afterwards to be treated, muſt have been attended with violent and dangerous ſymptoms. Yet I am decidedly of opinion, that the exciſion is leſs objectionable than the inciſion, provided it were neceſſary to *open the Hydrocele at all* in order to obtain its cure; but in

that

that case I am also clear that the best method would be, after having removed the whole of the cyst, to bring the sides of the teguments into contact, and not to prevent their immediate union by any intervening substance whatever; by this method that exquisitely sensible membrane the tunica albuginea would remain covered, and not be exposed to irritation from the air and from topical applications, which circumstances are the principal causes of the violent inflammatory symptoms which usually follow such exposure; but I hope to be able to prove, that such an operation is seldom, if ever necessary.

THE CAUSTIC.

Some of the earliest practitioners were not content with simply dividing the sac of the Hydrocele, in order to induce a suppuration of the membranes, and consequently an adhesion of the surrounding parts to the testicle;

testicle; nor in taking away the membrane to prevent the possibility of a new collection: Some of them proposed to open the bag with the actual cautery. This is recommended by Paulus Egineta. In the operation which he describes, the skin is to be destroyed by a cautery of a particular form, the eschar which is left with the cellular membrane to be dissected away, a cautery of another shape is then to be applied to the membrane.

On the pain and horror attending such a process it is unnecessary to remark. Franco speaks of this method, but in a cursory manner.—Marcus Aurelius Severinus practised it; he says he performed it with success on a friar and a citizen of distinction in the town of Tarentum. The sensations of these unfortunate patients may be readily conceived, and humanity bids us hope their fellow sufferers were few.

The caustic appears to be of later date.

Sabatier ſuppoſes Hildanus to have been the firſt author who takes notice of curing a Hydrocele by the application of a cauſtic. But it appears that, two hundred years prior to Hildanus, Guido de Cauliaco takes notice of the uſe of cauſtics in two different modes, one after the inciſion—Cum phlebotomo aperio & aquam extraho, deinde ad conſumendum folliculum, modicum arſeneci appono cum xylo & cotone & poſt caſum æſcharæ, conſolido & firmiter ſigillo, tract. 2d. doct. ii. cap. 7. He took this practice, he ſays, from Avicenna and Halyabbas; he then adds—Nonnulli vero, ut Magiſter Petrus de Orlhiaco, cauſtico & corroſivo ſuper pectinem locum aperiunt uſque ad didymi vacuitatem, poſtea perforando, ducendo caudam ſpecilli uſque ad locum aquæ, ipſam extrahunt, & poſt caſum æſcharæ conſolidant & ſigillant, alii autem cauterio actuali predictam operationem perficiunt, ibid.

Wiſeman

Wiſeman made uſe of cauſtic for the ſame purpoſe; he relates his having applied it to a very large Hydrocele, a copious quantity of water and bloody matter were diſcharged, the wound was dreſſed with a mild digeſtive: The following night the patient was attacked with fever and pain in the abdomen. The dreſſings were continued till the cyſt entirely ſloughed.—This patient had alſo a Hydrocele on the other ſide, which was divided with a cutting inſtrument; the ſymptoms were nearly equally violent till the ſac digeſted off, which happened in about twelve days. The cure was ſooner completed by the ſecond proceſs than by the firſt, and Wiſeman obſerves, the ſuppuration of the cyſt, ſo neceſſary for the radical cure, is not leſs certain by the inciſion than by the effect of the cauſtic.

Some modern authors recommend the cauſtic for the radical cure of the Hydrocele. Dionis adviſes to apply a line of cauſtic the

length

length of the tumor, and to cauſe the ſac to ſuppurate; his commentator De la Faye is of a different opinion, and ſays, that the inconveniences which practitioners have experienced from the uſe of cauſtics, have cauſed them to be laid aſide; but he does not ſpecify of what nature thoſe inconveniences were.

Garengeot mentions ſeveral objections to the uſe of cauſtics; he ſays the action of them is ſlow, and not ſufficiently powerful, yet that they frequently are extended to a larger ſurface than is meant; that an inſtrument muſt afterwards be uſed to divide the eſchar, and that the cauſtic particles ſometimes mixing with the water of the Hydrocele, communicate their corroding qualities, and produce irreparable miſchief. The laſt objection does not appear to have much weight, and indeed is completely contradicted by another practitioner, who recommends the application of a cauſtic the

length

length of the tumor, then to divide the eſchar down to the ſac; after which he adviſes a freſh application of cauſtic to the ſac, and does not fear any harm being communicated to the teſticle, becauſe ſo ſoon as the cauſtic meets with the water, its power and action are blunted and ceaſe.

The application of a large cauſtic continued in uſe, for a conſiderable time, among many practitioners. Mr. Gooch ſucceeded equally in the cure of Hydroceles by removing an oval piece from the ſcrotum, and diſſecting away the tunica vaginalis, as by the application of a cauſtic on the tumor; but, for reaſons which he has aſſigned, he preferred the former.

Heiſter appears to have ſeveral times uſed it with ſucceſs.—Sharp ſays he has ſeen material ill effects ariſe from it; he applied to a large tumor a cauſtic, an inch broad and ſix inches long, the day after he divided the eſchar, and let out the water; from the

third to the ninth day the patient complained of great pain in the part, in the back, and kidnies; the ſymptomatic fever was violent, and there was no ſign of digeſtion in the wound. Theſe ſymptoms, more or leſs, continued to the thirty-third day, when the patient grew better; but two abſceſſes were formed, which it was neceſſary to open. The patient got well in about ſixty days. This caſe certainly does not tell in favour of cauſtics for the cure of Hydroceles, yet the greateſt part of the bad ſymptoms related probably aroſe from dividing the eſchar, and letting the air have acceſs to the teſticle; if the ſcrotum had been ſuffered to contract and throw off the ſloughy membrane by degrees, theſe ſymptoms, if they had ariſen at all, would have been much more moderate.

Cauſtics have not always been employed with the ſame views; inſtead of being uſed to open Hydroceles through their whole length,

length, as is done by a cutting inſtrument, ſome have propoſed to make a ſmall opening in the middle of the tumor, ſufficient to diſcharge the water, and to excite in the internal part of the ſac an inflammation and ſuppuration; after which an adheſion would take place between the teguments and the teſticle. This method has been practiſed a conſiderable time in this country. The late Mr. Elſe has left a well written account of it. The method which he recommends is as follows: "To lay a ſmall cauſtic upon the anterior and inferior part of the ſcrotum, ſufficiently large to produce an eſcar about the ſize of a ſhilling, which is intended to affect, and, if poſſible, penetrate through the tunica vaginalis. Sometimes immediately after removing the cauſtic, ſometimes within twelve or twenty-four hours, the patient begins to complain of pain in the ſcrotum and loins, has now and then ſome cholic pains, the pulſe a little quickened,

and the tongue whitiſh; at different periods of time after removing the cauſtic, an alteration is perceptible in the ſcrotum; the tumor feels more tenſe or hard, in a few days the eſchar of the ſcrotum will looſen and come away, expoſing to view the tunica vaginalis, which bears evident marks of its having been affected by the cauſtic, and being prepared to ſlough off. As the cure proceeds, the ſloughy tunica vaginalis will project more through the orifice in the ſcrotum; if the water be diſcharged by puncture, the ſcrotum by degrees collapſes, and the orifice in it is filled up with ſlough, which prevents the acceſs of external air to the teſticle. Theſe ſloughs continue to come away with the dreſſings daily, for about *four*, *five*, or *ſix weeks*, and in proportion to their diſcharge the hard tumor of the ſcrotum leſſens. Whoever will carefully attend to the ſeveral appearances that accompany this method, muſt be ſatisfied that

that the caustic excites an inflammation of the tunica vaginalis, which spreads through the whole of it, in consequence of which the *entire membrane suppurates and comes away in sloughs*."

This method was certainly a great improvement on the former manner of applying the caustic; by not dividing the eschar, and no air being admitted, the inflammation was not violent; but, though preferable to many of the other operations, it appears to be in itself extremely exceptionable, as it causes an unnecessary destruction of the parts, and produces a tedious, painful, and offensive sore: for it is evident, from the passage which I have quoted, that it was Mr. Else's intention, and he generally succeeded in it, to produce a complete slough of the whole tunica vaginalis.

THE TENT.

The uſe of the tent for the cure of Hydroceles is not of very old date. It occurs firſt in the works of Franco, who ſeems to have had great confidence in it. An opening he recommends to be made in the ſcrotum of two or three inches; but the length of the inciſion muſt depend on the age of the patient and the ſize of the tumor. This wound, he obſerves, muſt be kept open with a tent of lint, linen, or ſponge; the larger the opening, and the longer time it takes to heal, the greater is the certainty of the complaint not returning.

Pare, deſcribing the ſame method, ſpeaks of it as having been ſucceſsfully uſed by ſome; but which himſelf had not practiſed, as indeed is evident from the indiſtinct and imperfect account of it which he has given. He appears to prefer the ſeton.

The method of uſing the tent is deſcribed by Guillemeau in this manner—The tumor is to be opened in its upper part by a right line, the inciſion ſhould not be large, and ſhould penetrate into the cavity where the water is collected, great care being taken not to injure the teſtis or the ſpermatic veſſels; the tent is then to be introduced.—The opening he adviſed to be made in the upper part of the tumor, as leaſt likely in that part to injure the ſpermatic veſſels; but this practice probably aroſe from an idea, that the water of the Hydrocele came from the abdomen, and found a paſſage by the ſpermatic veſſels, and that the cicatrix in that part would prevent its reproduction. If this method be followed, water and matter muſt be collected at the bottom of the tumor.

Covillard, in his accont of the different methods of curing the Hydrocele, does not forget the tent; he firſt ſpeaks of the place

where the incision ought to be made; Paulus Egineta and Celsus, he says, advise it to be done from the middle of the scrotum to the groin; while Avicenna and Gulielmus e Saliceto wish it to be made in the lower part. Here he appears to be rather mistaken, as neither of those authors say a word on the subject of the tent. Covillard indeed recommends the incision to be made nearly the length of the tumor, and to take away part of the cyst, by which means his operation did not greatly differ from the incision which was practised by the authors he has quoted; he then advises to apply a large and long tent of lint, and, to prevent any return of the complaint, the wound is to be kept open a considerable time by means of tents armed with digestives: he concludes with saying this method of operating is very certain, but is not free from danger in some habits, and may be followed with inflammation and gangrene.

The tent was in uſe at the time of Nuck; it was then the moſt common operation. Ruyſh, his compatriot and contemporary, ſpeaks of it in the moſt poſitive manner, and ſhews that he had particular experience of it; he ſays, when a Hydrocele is opened by a trochar, or lancet, the tumor ſoon appears again: but, if an opening be made in the ſcrotum in the upper part and on one ſide, and a tent is introduced covered with ointment mixed with red precipitate, till a gentle inflammation, followed by a moderate ſuppuration, has rotted the membrane in which the water is contained; and, if this membrane be taken away piecemeal, he obſerves, it is a perfect cure, as he has ſeveral times experienced. The authority of Ruyſh, who was well acquainted with ſurgical buſineſs, and held a diſtinguiſhed rank among anatomiſts, is not to be diſregarded; yet how can we conceive ſucceſs to have followed, if the inciſion was made in the upper and

lateral part of the Hydrocele? Is it not probable that a collection of matter muſt have been formed in the lower part of the tumor, from which there could have been no depending opening by the wound, as it was directed to be made?

Modern inſtances might be brought of violent inflammatory ſymptoms following ſuch practice, attended with mortification, and even a fatal termination. If the tent be uſed, the opening for it ſhould undoubtedly be made in the lower part of the ſcrotum; one of the firſt and moſt uſeful principles in ſurgery is to gain a depending opening for matter, or any fluid which we wiſh to diſcharge, and is particularly applicable in this caſe, where a contrary practice muſt be productive of the worſt conſequences, from the extreme irritability of the parts concerned.

Other authors have recommended the tent with little variation, ſo that it is obvious that

that the uſe of the tent for the cure of Hydroceles was long practiſed. It does not, however, appear to have been in uſe among the French ſurgeons before the middle of the ſixteenth century, and I do not find it after the beginning of the preſent, except in Heiſter, who rather deſcribes then adviſes the operation; but, if it was abandoned by the French, it continued to be the practice of the Italians, as it is much recommended in a work intitled, Pratica delle piu difficili operazïoni di chirurgïa che reguardono il Lithomomo e l'occuliſta; printed at Rome 1723, in octavo. This is the work of Jerome Marini, and, if we take the opinion of Haller, is a very moderate compoſition. Marini adds nothing to the manner of uſing the tent, except that it ſhould be armed with medicaments of different qualities, according to the different ſtates of the treatment.

Dr. Monro, in later times, conceived a

procefs which had fome analogy to the ufe of the tent. This was to irritate the anterior part of the fac by leaving the cannula fome time within the cavity, but the confequences of them were very different; the tent was intended to caufe a fuppuration of the fac, and the external furface of the tefticle, at leaft the tunica albuginea. On the contrary, the intention of Dr. Monro was only to excite fuch an inflammation as might be followed by a cohefion of the parts; as he had often feen Hydroceles cured, in a manner fpontaneoufly, by an inflammation which was accidentally produced, he conceived he might bring about fuch an inflammation by art; but he was aware that this muft require great care, and that the furgeon fhould always be able to regulate the degree of inflammation; he therefore rejected irritating remedies, of which he could not immediately prevent the effect. He thought he fhould fucceed better

by

by the cannula of a trochar left in after the evacuation of the water, as the cauſe of irritation might be removed whenever it was thought that ſufficient inflammation was produced. Monro never practiſed this plan himſelf, and he recommends it with great diffidence; the hint, however, was ſufficient to induce Mr. Pott to try it, and to ground on it his operation of the ſeton.

Perhaps Monro's plan may be traced in Fabricius ab Aquapendente; after having advanced that the Hydrocele is ſometimes cured by a ſimple inciſion in the lower part, although it be ſuffered to cloſe again immediately, Fabricius adds, that ſome practitioners keep the inciſion open during ſome days with a cannula of ſilver; undoubtedly they only propoſed to preſerve an opening by which the water, if any ſhould collect, might find a free exit; but every one muſt ſee that a cannula remaining in the cavity of the tunica vaginalis for ſome days, muſt

rub

rub and fret the teſtis, and the inſide of the tunica vaginalis, and bring on an inflammation. If we believe Faliopius, Galen has adviſed to leave a cannula in the ſac of a Hydrocele during ſome days; but on conſulting the works of that author in the place quoted, there is no expreſſion ſufficiently preciſe to determine that to have been his intention.

This method has not much obtained in practice; Mr. Pott tried it, and aſſures us that it was not followed by bad conſequences: he only obſerved that the preſence of the cannula was very inconvenient, and that the inflexibility of it hurt the teſtis when the patient moved with inattention. The tent and bougie, which he ſubſtituted in its place, were not nearly ſo incommodious, but the effects produced by them were very uncertain; and, on the whole, he was of opinion, that it was not to be depended on.

Mr.

Mr. Warner made ſome trials of the tent, of which he has related four caſes; in the firſt he introduced a piece of ſponge, which continued twenty-four hours without producing any ſenſible effect, and was ſuffered to remain to the third day, when the ſcrotum became hard and inflamed; the fourth day a ſmall quantity of matter tranſuded; this diſcharge continued to increaſe during ten days, after which a little abſceſs formed which furniſhed ſome matter, the diſcharge then diminiſhed, and the membranes contracted an adheſion to the teſtis.

This is the moſt favourable caſe which Mr. Warner has recited, and he pronounces it an eaſy, ſafe, and ſimple cure; but we muſt remark, that there was an abſceſs formed, which was opened by an inciſion.— In the ſecond caſe the inflammation roſe to a much greater height; the third day after the operation the patient had ſickneſs, attended with vomiting and fever; the fif-

teenth

teenth or sixteenth day the scrotum burst in two places near the original puncture, from which openings there issued a considerable quantity of matter mixed with a slough.— In the third instance the patient was attacked with a rigor on the eleventh day, the inflammation increased to a great degree, and matter was formed which burst its way through the scrotum; yet, notwithstanding the violence of the inflammatory symptoms, there appears to have been a beginning fresh collection of lymph in a portion of the tunic which had escaped the inflammation.—In the fourth case the symptoms were not much more favourable, the scrotum imposthumated and burst, and a great deal of fetid matter was discharged *.

As

* The late Mr. John Hunter used to make an incision into the tunica vaginalis, and then fill the cavity with poultice or moistened linseed powder. I had not many opportunities of seeing the result of his practice; but one

As the introduction of a tent or other foreign bodies is a method which I have never practised, I have been more particular in relating the practice and opinions of others; and, from what may be fairly collected from the general account, I conceive the operation does not ſtand in a very favourable light.

THE SETON.

No traces of the uſe of the ſeton for the cure of Hydroceles are to be found among the ancients; this remedy, which was invented by the Arabians, was not applied to

one gentleman on whom he performed it, and whom I afterwards attended, was attacked with moſt violent and dangerous ſymptoms. In this caſe I found an inciſion made in the *upper part* of the ſcrotum, which had been filled with linſeed meal, a great degree of fever was produced, matter formed in the lower part of the tumor, and was followed by gangrenous ſloughs of the ſcrotum and tunica vaginalis.

this diſeaſe till after the time in which they wrote. The firſt mention of it is in a work of Guido de Cauliaco in 1363; he ſays the Hydrocele may be emptied by means of a ſeton, which may be done in this manner: the tumor is to be taken hold of by a pair of forceps, flat and pierced with an opening near the ends of the blades; through theſe a needle is to be paſſed, carrying a ſeton, which is to be left behind until the water is entirely evacuated.

Fallopius ſpeaks of this method as new, but does not approve of the forceps recommended by Guido; he thinks it ſufficient to pierce through the Hydrocele with a proper needle. Fabricius ab Aquapendente alſo mentions the ſeton, though he does not ſuppoſe it likely to produce a radical cure in every caſe.

We meet with the ſame doubts of the certainty of ſucceſs from this operation in a Treatiſe on Herniæ by Franco. This

author

author afferts that the moft certain method is to extirpate the cyft along with the tefticle, or, in other words, to caftrate, as after any other operation the tumor is fubject to return at the end of five or fix months or fooner. The manner in which he advifes the feton to be paffed is the fame which is mentioned by Guido and Fallopius, and fays it may be done either with the forceps, through which the needle may be paffed, or the needle may be ufed alone; but then it muft be curved. When the firft method is ufed, the needle fhould be made red hot, and paffed quickly, that it may not cool in traverfing from one opening to the other. Sometimes it is neceffary to ufe the other method, as, when the bag is very full and much diftended, the forceps would require to be pinched with too great force in order to bring the blades fufficiently clofe, and he obferves that no means ought to be neglected to prevent inflammation; if it rifes too high, the feton

must be removed, if not, the seton is to be only moved every day, to favour the discharge of the water. Notwithstanding the strange awkwardness and inconvenience of conveying a seton by means of the forceps, it was the method which Pare made use of, and appears to have been his common practice, as it is the first of which he has given a description.

The seton, though not generally adopted, continued in use in the time of Covillard; it was conveyed by means of a needle half a foot in length, the point heated red-hot, and carrying silk nine or ten times double; he prefers this method, because it is often difficult, from the size of the tumor, to make the holes in the blades of the forceps meet; but says this method is not always successful, owing to the inflammation of the openings not permitting the water to find a passage out. Other authors speak of the uncertainty of the success of the seton as a radical cure,

but recommended it as a palliative cure in Hydroceles of the tunica vaginalis; others think it only applicable where the water is diffused through the cellular membrane.

Heister, the faithful reporter of all the methods of operating which are known to him, in treating of the radical cure of the Hydrocele, does not omit the seton; he describes it as done with a needle; but adds, that the seton should be imbued with digestive and caustic medicines, and advises it to be suffered to continue in the sac a month, as the former failure of success he ascribes to not letting it remain long enough, by which, sufficient inflammation was not excited to produce the adhesion of the membranes with the testicle; but, as by this process a knowledge of the state of the testicle is not procured, he says, practitioners in general prefer other methods.

The objections which Heister made are the same which since occurred to Mr.

Douglas:—he obſerves, that it is not neceſſary to inſiſt further on the uſe of the ſeton; for, beſides that the application of it is extremely painful, it does not produce a ſuppuration of the cyſt, and gives no opportunity of knowing the ſtate of the teſticle; the action of it alſo is ſo ſlow, and productive of ſo much irritation, that he does not think it an adviſable operation.

The diſadvantageous light in which almoſt all the practitioners had left this method, did not prevent Mr. Pott from making trial of, and adopting it. The diſguſt which he had conceived for the painful operation of inciſion, and the unneceſſary deſtruction of the ſac, even in the beſt way of employing the cauſtic, led him to endeavour to ſteer clear of both, by a method which ſhould not be painful in the execution, and ſhould only procure an adheſion of thoſe parts which the cauſtic made neceſſary to come away. Having proſecuted Monro's idea of

letting

letting the cannula remain, Mr. Pott was convinced that a foreign body might be endured within the tunica vaginalis without risk or danger; but, as the cannula was found inconvenient and troublesome, he was induced to substitute the seton, which was calculated to lie smoother and softer.— I attended his first essays, which were as follow:—After having pierced the Hydrocele with a middle sized trochar in the lower part, and let out the water, he introduced through the cannula, an eye-probe, carrying a seton of ten or twelve threads of candlewick cotton; he passed this probe the whole length of the sac against the upper part, and there, on the blunt end of the probe, made an incision sufficient to let it out with the seton which it conveyed; he then cut off the seton close to the probe, and tied the two ends of it loosely together; the wounds were covered with a pledget. The morning after, the seton was found to have contracted such

firm adhesion to the inside of the sac and the tunica albuginea, that an endeavour to detach it would have caused the patient great pain; but this was not necessary, as, while untouched, it remained without any inconvenience to the part.

In less than twenty-four hours after the operation, the scrotum and testicle began to inflame, and put on the appearance of a hernia humoralis, and was treated in the same manner as is usual in that complaint, with fomentation and poultices, and supported in a bag-truss; attention being paid to keep the patient cool.

The adhesion of the seton to the albuginea continuing firm, it was not meddled with, till, the inflammation lessening and the tumor subsiding, it became loose. This was generally in about a fortnight; by this time the parts had contracted a firm and solid cohesion; the seton was then withdrawn, and the orifices healed with a superficial pledget.

Mr.

Mr. Pott practiſed this method on many perſons, and ſucceeded very well. The patients kept their beds a few days, after which they ſat on a couch till the cure was complete, which was uſually in three or four weeks; during which time no other regimen was neceſſary, than an inflammation of the parts from any other cauſe would require. However, Mr. Pott ſoon diſcovered that the manner of performing the operation might be improved; he found that it was extremely difficult to cut on the end of the probe which carried the ſeton, and required the aſſiſtance of another perſon. He remarked that the cotton paſſed with difficulty, and by rubbing on the tunica albuginea gave pain; that the ſeton, being made of cotton, adhered in ſome inſtances too long and too firmly; that, from the intimate union of its parts with each other, it could not be brought away but entire, which unneceſſarily prolonged the cure, and in two caſes

it was neceſſary to make an inciſion to ſet it free.

Theſe inconveniences led him to change his plan, and were completely obviated by the inſtruments he latterly made uſe of. Mr. Pott was always averſe to multiply inſtruments in any operation, but in this he found it neceſſary to make uſe of three; the firſt was a trochar, the dimenſion of whoſe cannula was about one fourth of an inch; another cannula, called the ſeton-cannula, made of ſilver, of ſuch diameter as juſt eaſily to paſs through the cannula of the trochar, its length five inches, and a probe ſix inches one half long, having at one extremity a fine ſteel trochar point, and at the other, an eye which carried the ſeton; which ſeton conſiſted of juſt ſo much ſtrong coarſe white ſewing ſilk as would without difficulty paſs the cannula, but at the ſame time would fill it. Of late years he made uſe of a much ſmaller ſeton, and found it to anſwer the

purpoſe

purpose better, giving more room to the discharge of any fluid which might be collected, and being more easily removed at the proper time.

With the trochar the inferior and anterior part of the tumor was to be pierced, as in the palliative operation. As soon as the perforator was withdrawn, and the water discharged, the seton-cannula was passed through that of the trochar, until it reached the upper part of the tunica vaginalis, and was felt in the upper part of the scrotum; this done, the probe, armed with its seton, was conveyed through the latter cannula, the vaginal coat and integuments were pierced by its point, and the seton was drawn through the cannula until a sufficient quantity was brought out by the upper orifice; the two cannulas were then withdrawn, and the operation was finished. It was executed in two or three seconds of

time, and with little more pain than is felt in the palliative operation.

By this method every advantage of the former operation is retained, and every inconvenience which it was liable to is removed: the seton cannula, by its firmness, bears hard against the place where the seton should be brought out; the trochar point of the probe is prevented from deviating by its confinement, and its point pierces through the skin immediately, and exactly in the place intended; while the seton, by passing through the cannula, is prevented from rubbing rudely over the testicle.

The symptoms, which this manner of placing the seton caused, were nearly such as followed the former method, and required the same treatment. When the swelling was diminished, and the parts regaining their natural state, which happened about the tenth or twelfth day, the seton was gradually

removed; the adhesion always made some force necessary to bring it away, but a few only of the threads being withdrawn at a time, the adhesive resistance was small; the dressings were, as before directed; a pledget over the whole scrotum.

I have been induced thus fully to relate Mr. Pott's plan, as I find it has been sometimes either not understood, or not sufficiently attended to; some persons, though intending to pursue the same idea, having acted very differently from his directions, and others having advised alterations which, in fact, are a total subversion of its principles.

The process which he recommends must be allowed to have been carried to a great degree of perfection, and, if the operation be performed without deviating from the directions he has laid down, I am convinced it will be found preferable to any of the methods which have been usually practised

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in this country. I had opportunities of ſeeing many of theſe caſes with him, and have myſelf often practiſed it; but do not recollect more than two inſtances in which the ſeton failed to produce a cure. I muſt therefore conclude, that the want of ſucceſs which has been attributed to it, muſt have ariſen from a miſapprehenſion of the proper manner of conducting it; particularly I muſt remark a great miſtake which has been made in treating it like a common ſeton, by *drawing it upwards and downwards once or twice a day*, and which is the more likely to miſlead others as it is recommended by a modern writer of conſiderable reputation. If we take into conſideration the nature and texture of the parts which are to be thus rudely treated; that there is no gland or viſcus in the human frame ſo ſuſceptible of inflammation, and which ſwells inſtantaneouſly to a greater degree, ſuch treatment muſt ap-

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pear likely to produce exquisite pain and irritation.

I must also take the liberty to reply to some objections, which Mr. Bell has made to the seton; one of which is, that it does not give an opportunity of examining the state of the testicle. I am at a loss to know what better information of its state any man of science would desire, than he could acquire by the touch, after the water is evacuated, which is always done previous to the introduction of the seton when the operation is *properly performed*; but not, when the trochar is passed into the upper part of the tumor, as Mr. Bell recommends, from having found difficulty in passing the seton needle, while the vaginal coat is in a collapsed state.—If Mr. Bell had introduced the seton-cannula, which Mr. Pott has described, I apprehend he would have found no such difficulty.

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By the trochar being introduced at the lower part, the bag is completely emptied, and the testicle is submitted to the most perfect and satisfactory examination; not to mention that the palliative cure is, or ought to be, in general performed at least once prior to any radical cure being attempted, which gives an additional opportunity of forming our opinion of it. It would be unfortunate indeed for mankind, if it were necessary to divide the scrotum, and lay bare every testicle which requires examination, before we could determine whether it be or be not diseased.

Another objection which this gentleman has made, and has given as a reason why the seton should be entirely set aside is, that it is ill suited for evacuating hydatids: his precise words are, "It *frequently* happens that the water of a hydrocele *is contained in a number of hydatids*; a circumstance which cannot

cannot be discovered previous to the opening of the tumor. And as it will be readily admitted that the method of cure by seton is ill suited for evacuating hydatids, this of itself is a very material objection to the practice. So that upon the whole, although the seton in every other respect should be equally eligible with the simple incision, which, for the reasons formerly given, I think it is not, yet the two last objections we have adduced are sufficient reasons for *setting it entirely aside*." That hydatids are sometimes formed in various parts of the body must be allowed; but I will appeal to any man of experience, whether they frequently happen in the tunica vaginalis. During near thirty years attendance at a large hospital, besides the private practice of Mr. Pott and myself, I may presume that as great a variety of Hydroceles have reached my notice as most individuals have seen; yet I do not recollect a single instance of

hydatids in the Hydrocele,* though I have often met with them *floating in* collections of fluid in the abdomen, in the thorax, under the fascia of the thigh, and in other parts; but granting that instances of the kind may happen, such particular cases might require an incision to let out hydatids which would not pass through a cannula; but that an operation, recommended by one of the ablest Surgeons who has ever practised in this or any other country, should be entirely *set aside*, on account of a deficiency in demonstrating *that* which it palpably points out, or the possibility of the occurrence of a phenomenon, does not appear to me extremely reasonable.

The operation, as Mr. Pott practised it, stands on the most rational ground. The whole of his end and aim being to produce

* Since this remark was written, I have seen two cases, and only two, of Hydroceles in which were collections of hydatids.

a cohesion

a cohesion without destroying the tunic, or causing it to slough. This the seton certainly effected; but it must be observed that it went beyond the intention; being a solid body, an adhesion also took place between that and the part of the sac with which it was in contact, and a suppuration, at least in the track of it, became necessary to loosen so as to make it capable of being removed; add to this, that it was certainly productive of more inflammation than was requisite for the cohesion of the tunics, by which fever was sometimes produced, and abscesses were sometimes formed; and that the matter which was collected and discharged was always peculiarly offensive, owing to the putrid disposition it received from the air, which found a ready entrance through the orifices made by the seton.

Whoever conſiders what has been related, muſt obſerve, that all the methods uſually employed to obtain a radical cure of the Hydrocele, when they have proved effectual, have been generally attended with great inconveniences, and ſometimes with very alarming danger, both to the functions of the diſeaſed part and to the life of the patient; and all this riſk and danger were incurred to get rid of a complaint in which neither life nor general health were materially intereſted. No man could reflect on theſe circumſtances without wiſhing that it were poſſible to obtain the end by a milder proceſs.

It is obvious that in every method which has been deſcribed, inflammation was carried too far by continued irritation, from whence I drew a plain concluſion, that if a juſt and proper inflammation was raiſed by a cauſe which could be immediately removed, it muſt be preferable to letting any irritating

irritating foreign body remain, to be caſt off by a further proceſs, after the original intention, that of exciting merely an adheſive inflammation, had been anſwered; as it muſt be evident to every man of common underſtanding, that after the inflammation has completely taken place over the ſurface of the tunica vaginalis, the continuation of the cauſe of it muſt be not only uſeleſs but highly prejudicial.

Impreſſed with theſe ideas, I turned my thoughts to fluids, as alone being capable of cauſing an immediate irritation, without the neceſſity of their lodging and remaining in contact with ſuch irritable and inflammable ſurfaces; the only difficulty remained in ſelecting the proper fluid, which ſhould do the buſineſs effectually, yet moderately.

INJECTIONS.

On further inveſtigation, I do not find that injections for the cure of the Hydrocele were in uſe among the early practitioners; nor have I been able to trace any account of them till of late years.

Dr. Monro attributes the firſt uſe of injection for this purpoſe to an army ſurgeon of his own name. Mr. Monro firſt made uſe of ſpirits of wine, which cured the complaint; but the inflammation was ſo violent that he thought it expedient to try a milder injection; he accordingly ſubſtituted wine, which anſwered the purpoſe as well, with leſs violence: but what the quantity was, or how the injection was uſed, that is, how long it was ſuffered to remain in the ſac, does not appear.

Mr. Sharp, in his treatiſe on operations, relates a cure of a Hydrocele, which was attempted with ſp. vin. but was not attained

tained without danger. The pain which immediately followed the operation was violent, and continued to increafe to the day after, when the tumor became hardened and fwelled to a great degree. After remaining a month, it terminated in two abfceffes on the anterior part of the fcrotum. Mr. Sharp had been induced to make this trial, but he does not appear to have repeated it, nor do we find any thing relative to it in his critical enquiry on the ftate of furgery, publifhed more than ten years after, which is a fort of proof that it was not practifed in England at that time. Indeed the greater part of the Englifh authors, who have written profeffedly on the different methods of curing the Hydrocele, do not mention it. Mr. Douglas fpeaks of it only to fhew his difapprobation of the practice; he fays that the vaginal coat is at fuch a diftance, and the furface of the tefticle fo unequal, owing to the epididymis, that it

ſeems impoſſible that theſe two parts ſhould touch with exactneſs. Le Dran conceives that injections cannot ſucceed, becauſe it would be impoſſible to bring the ſides of the cyſt together ſo as to touch, and beſides that, the proceſs would be liable to bring on inflammation. Theſe reaſons, particularly the laſt, had no weight with me, becauſe it is the very circumſtance which is to make the cure.

Mr. Pott alſo, in his treatiſe on the Hydrocele, ranked injections among thoſe operations which, "happily for mankind, were laid aſide." From the deference, which I had always, with great reaſon, paid to his experience and abilities, this, I confeſs, was diſcouraging; but I have now the ſatisfaction to ſay, that he lived to alter his opinion on the ſubject, and that it was his intention to have made trial of them.

As I had frequently ſucceeded in procuring an adheſion and conſolidation of parts in

ſinuſes

ſinuſes and other large cavities, by injections of various kinds, without cauſing great inflammation, and had by thoſe means avoided the neceſſity of the deſtruction, or extenſive diviſions of the ſkin and integuments, which ſhould be avoided as much as poſſible, not only in the neck and face, or where we particularly wiſh to preſerve beauty, but in every part, as the loſs of true ſkin is never perfectly reſtored; I conceived the cure of Hydroceles might be effected by the ſame gentle means, without deranging, in any great degree, the tender and ſenſible organs which are the ſeat of the diſeaſe, and I was determined to make the experiment. While conſidering the beſt method of effecting my purpoſe, I was not a little pleaſed to find by Mr. Sabatier's account, that though injections had been neglected in England, they had been often uſed in France, and I learned that experiments had been made on a great variety of injections; that ardent

ſpirits

ſpirits and ſolution of cauſtic had been tried, which had cauſed great inflammation and much miſchief; but that more mild injections had been uſed with ſucceſs.

The proper object of all attempts to cure the Hydrocele without deſtruction of the ſac, is to produce ſuch adheſion of the diſtended vaginal coat of the teſtis to the gland, as ſhall annihilate the cavity in which the water conſtituting the diſeaſe is contained. We know that this effect is produced by a certain degree of inflammation, and are unacquainted with any other proceſs, either natural or artificial, by which it can be brought about.

Injections introduced within the tunica vaginalis, into the urethra, or into any cavity of the body, natural, or formed by diſeaſe, are certainly capable of doing miſchief; but the miſchief muſt ariſe from the nature of the injection: if it be violent or irritating it may produce too great inflammation. The

cauſtic

cauſtic and highly ſtimulating injections which had been moſt injudiciouſly made uſe of, and retained an unneceſſary length of time, undoubtedly did harm, and were the cauſe of bringing injections in general, and for the cure of Hydroceles in particular, into diſcredit; but it is extremely abſurd to infer from ſuch inſtances, that all kinds of injections muſt be pernicious. If Mr. Sharp, inſtead of being alarmed at the bad ſymptoms which ſucceeded the uſe of ſpirits of wine, had diluted it, he would probably not ſo eaſily have decided againſt injections. In the uſe of injections we are not limited to any degree of ſtimulus. Injections may certainly be prepared ſo corroſive as to inflame, and even to diſſolve the moſt indolent parts; on the contrary, they may be uſed ſo bland as not to offend the moſt ſenſible membrane or ſurface in the human body, and they may be made to produce any intermediate effect.

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There is no kind of ſtimulus which admits of ſuch various modifications.

Other great advantages of injections are, that they apply themſelves equally and univerſally over the whole cavity into which they are thrown, and when they have remained long enough to produce the requiſite ſtimulus, they are eaſily and completely diſcharged. Theſe are eſſential effects which cannot be derived from any ſolid body.

The injection, which, after ſome conſideration, I fixed on for the purpoſe, was wine, which I made choice of for ſeveral reaſons. I found that it had been uſed with ſucceſs in France; I had experienced it to anſwer well in procuring adheſions in other parts. The ſtrength of wine is never ſo great as to render it an unſafe remedy, and it may be readily lowered according to the different ſenſibility of the parts. Thus a vinous injection appeared capable of producing

ducing all the good effects which could be desired, with scarce a possibility of doing harm. The success which has attended it has more than answered my expectation, and from every trial which I have made, I have no reason to wish for a different one. The pain which is produced is incomparably less than by any other operation; it does nothing more than is intended, and the curative effect, as far as my experiments have gone, is equally certain*.

In my edition of Mr. Pott's works was introduced a circumstantial account of all the experiments I had then made on the subject of injections for the cure of the Hydrocele. As practice is best illustrated by examples, they were again introduced in

* Thirteen years are elapsed since I wrote the foregoing account. I can now speak from experience, that I have found the plan uniformly successful, and consequently it has not been necessary to alter it in any respect.

my treatise on that subject; and the method being rather new in this country, requiring therefore all the light which experience could throw on it, such further cases and observations, as had then fallen within my notice, were added. These being the original proofs of the efficacy of the plan, they will be here repeated; and some few additional instances, in which particular circumstances worthy of notice have since occurred, will be mentioned.

Case I.

The first case, in which I performed the operation, was in 1787. A man, about fifty years of age, was taken into St. Bartholomew's hospital with a large Hydrocele of many years standing. June 21, in the presence of Mr. Pott, I passed into it a trochar, and let out a very large quantity of fluid of the usual colour and consistence.

I found

I found the tunica vaginalis remarkably thickened and unpliable; to the feel not unlike tripe, or buff leather: the teſticle was much larger than the natural ſize. On conſidering every circumſtance, it appeared to be a very unfavourable caſe for any operation except the palliative: however, as I was deſirous to try the effect of injection, and there was no probability of doing miſchief, I filled it with port wine diluted with a decoction of red roſe leaves. The man felt not the ſmalleſt pain; after retaining it a few minutes, I ſuffered it to be diſcharged. The next day a ſmall degree of inflammation had taken place; the third day from the operation it was increaſed, and the whole ſcrotum conſiderably ſwollen: the patient continued abſolutely free from pain and fever. By way of precaution a poultice was applied, and he took an opening draught. On the ſixth day the inflammation continued, the ſcrotum much ſwollen, the pa-

tient without any other complaint. In a few days the inflammation leſſened, but the ſcrotum was almoſt as large as before the operation, and, to all appearance, it now contained a fluid. It ſeemed extraordinary that water ſhould be again ſecreted and collected in ſo very ſhort a time; yet, as it was not attended with any pain or inflammation, I concluded that it was poſſible; and, being the firſt attempt which I had made, I was rather inclined to think, with every one who had ſeen it, that the injection had failed, and that there was a freſh accumulation of water. Accordingly it was agreed that the operation by the ſeton ſhould be performed. Saturday, July 8th, he was brought into the theatre for that purpoſe; when, on examination, it appearing to Mr. Pott, and all who were preſent, that the ſize of the tumor was leſſened, he was ſent back to his ward. From that time the tumor continued gradually to diminiſh till

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the testicle was plainly perceptible, surrounded by the thickened tunica vaginalis. July 18 I examined with attention, and found it not only perfectly free from any fresh accumulation of fluid, but the testicle less in size than when I first let out the water; and the patient being well in every respect, I discharged him.

On considering all these circumstances I conceived that, if the method succeeded so well in this case, in which, from the size of the tumor, the duration of it, and the thickness of the vaginal coat, I had despaired of effecting a cure, there was every thing to hope from it in more favourable and more recent ones, and that it was infinitely preferable in every respect to any other operation I had ever seen attempted for the cure of Hydroceles. No pain, no violent irritation, nor fever succeeded; a gentle inflammation only took place, attended with a moderate tumefaction, just sufficient to pro-

duce an adhesion of the tunica vaginalis to the testis, without the tedious process of suppuration, which, in some degree, is always the consequence of any other operation.

CASE II.

THE next case which occurred to me was in June 1787, in the person of a gentleman, who shewed me a Hydrocele which he said had gradually been increasing during several months. The integuments were remarkably thin, and in every respect it was the reverse of the case just described. He wished to have the radical cure performed, and it appeared a very good subject for an operation. As he was a man of excellent understanding, and had applied his thoughts to surgical cases, and more particularly to this which most materially concerned himself, I described to him all the different operations

which have been recommended for the cure of it, and pointed out what appeared to me their advantages and disadvantages, that he might form some judgment, and choose which he would submit to. He decided in favour of injection. After having evacuated about five ounces of yellowish fluid the testis felt larger than natural, but soft; I then threw in some injection more diluted than in the preceding case. He complained of some pain, on which account, after the injection had continued one minute, I suffered it to be discharged, and the pain soon ceased; when, lest I should not have done quite enough, I attempted to throw in some more, but air had got into the syringe, and I was rather foiled; however some went in, on which he again complained of pain, and I again discharged it, and withdrew the cannula. He continued to feel a small degree of uneasiness, and went to bed. I saw him again in the evening, when he told me

the pain had gradually ſubſided, and that he was then perfectly eaſy. I ordered a fomentation and poultice to the part, and an opening draught. The next morning a very gentle inflammation had taken place, the parts were moderately tumefied, and he felt very little uneaſineſs. The third day, being much the ſame, he choſe to get up; the fourth day, encouraged by eaſe and favourable accompaniments, he very imprudently exerted himſelf in moving a heavy table, by which he brought on his pain again, and the ſcrotum looked larger and more inflamed. This freſh acceſs was fortunately ſoon calmed, and the parts again gradually ſubſided; and, though he continued to ſit up, in nine days from the operation the gland bore to be examined as well as a ſound teſticle. In a few days after, the inflammation was entirely gone; and, what appeared a circumſtance very much in favour of this operation, as it is

contrary to what happens after, I believe I may ſay, every other operation for this complaint, the teſticle was become perceptibly, to the patient as well as to myſelf, ſmaller than when I let out the water. Every one muſt allow that, after operations by which any ſolid foreign body is ſuffered to remain within the tunica vaginalis, the teſtis for a long time remains enlarged, owing to the great and unneceſſary quantity of inflammation excited, and to the duration of it. A fluid may undoubtedly be made ſo powerful, and retained ſo long, as to produce the ſame ill effects; I muſt therefore obſerve, that the ſucceſs of the method which I am deſcribing will probably be found to depend on two circumſtances; the mildneſs of the injection, and the very ſhort ſpace of time which I have proved to be ſufficient for its retention.

Finding himſelf perfectly well, he went to his country-houſe, where he caught cold,

 by

by remaining in his garden after rain, and had a very ſevere attack of fever; but notwithſtanding, the teſtis continued perfectly quiet and eaſy. May 20th, in the following year, I had an opportunity of ſeeing him again; when, on a careful examination of the parts, I was convinced that the teſtis was become of its natural ſize, that an adheſion had univerſally taken place between the tunics, and, in ſhort, that the cure was complete. I have had many opportunities of ſeeing him ſince, and he remains perfectly well *.

* As the improbability of cures by injection continuing perfect for any conſiderable length of time, was ſtarted as an objection by the only perſon who has objected to the operation, I can now, (Dec. 10, 1804,) with much ſatisfaction affirm, that the gentleman, above alluded to, is in good health, and free from any appearance of ever having had a Hydrocele.

Case III.

November 23, 1787, a young man ſhewed me a ſwelling of the ſcrotum, of a few months duration, which I perceived to be a Hydrocele. After proper evacuations, I determined to attempt the cure by injection; I drew off a large tea-cup of ſtraw-coloured water, and found the teſtis rather enlarged, as uſual, but free from diſeaſe: I immediately filled the cavity with injection, which was kept in a couple of minutes; the patient complaining of ſome pain ſhooting up to his loins, it was diſcharged, and he went to bed. The next day I found him free from fever; he ſaid, he had felt ſome pain ſimilar to what he had felt during the operation; but the inflammation was not more than to be deſired; the ſcrotum gently diſtended, with a ſcarlet blush. I ordered a poultice and bag-truſs, and adviſed him, what I always recommend, not to ſuffer the

ſcrotum to fall down between the thighs, but to ſupport it by a ſmall pillow, or by keeping the knees cloſe. The 26th, the inflammation was very moderate, he had no pain, nor had felt any ſince the ſecond day; it continued gently to increaſe, and ſeemed about its height on the 28th, the fifth from the operation: and two days after, it appeared to be gradually decreaſing; the patient, during the whole time, being entirely free from pain. December 4, the inflammation was diminiſhed, the tumor about half its original ſize. On the 10th, the ſeventeenth from the operation, all inflammation had left it, the adheſion of the membranes appeared complete, and the teſtis in a perfectly quiet ſtate.

CASE IV.

ON the ſame day that I injected the laſt mentioned Hydrocele, another caſe, exactly ſimilar

ſimilar in every reſpect, was put under my care; the age of the man nearly equal; his conſtitution, the duration and ſize of his complaint, as nearly reſembling the other as poſſible. To give a fair trial to both methods, I paſſed a ſeton in this; the complaint proceeded very well, with moderate inflammation: the ſeton was gradually removed, thread by thread, as they became looſe; in about ten days the ſcrotum began to leſſen and collapſe; a ſmall abſceſs, however, was formed, the matter of which emptied itſelf by the lower orifice. On the whole, this caſe gave as little trouble, and ended as happily as this mode of treating it generally does. But I muſt moſt truly confeſs, that it did not ſeem comparable to the other, in which the inflammation was more moderate, the duration of it leſs, and no abſceſs was formed.

Case

Case V.

March 12, 1788, in company with the late Mr. Pitts, I let out the water from the Hydrocele of an elderly man, which had been tapped about five years before. It appeared large before the operation; but the quantity of water which was evacuated, and which meaſured conſiderably more than a pint, proved the cavity to have been more capacious than we had apprehended. The teſticle was in a ſound ſtate, very little larger than natural; I threw in ſome injection, the patient felt no pain, and ſcarcely any extraordinary ſenſation, which induced me to uſe the remainder of the injection of a ſtronger quality, and to keep it in longer than uſual. I had not enough to fill the cavity; however, by handling and altering the poſition of the parts, I cauſed it to be diffuſed over the whole cavity: and, as I have obſerved, it is the chief excellence of this

this method, that we are enabled to irritate and affect every part equally, but moderately. From the capacity of the cavity, and the consequent improbability of the parts lying in contact with each other, after having been so largely distended for such a length of time, I formed a very unfavourable prognostic of the event. I saw him next morning; he said he had perceived a slight pain in the afternoon, for about two hours, since which he had been easy; a small degree of inflammation and tumefaction had taken possession of the part. The 14th, the second day after the operation, they were moderately increased; I began, from the appearances, to have hopes of success, as the inflammation was just as I wished: the 15th, apperances were similar to those of the day before: the 17th, the inflammation continued moderate and unattended with pain: the 20th, the eighth from the operation, the inflammation and tumefac-

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tion were leſs, and continued gradually ſubſiding, he was ſoon after diſcharged well. I have had many opportunities of ſeeing him ſince, and he remains perfectly ſo.

As I have mentioned in the laſt caſe, that I threw up the injection ſtronger than uſual, I will take this opportunity to obſerve, that I have commonly uſed about two thirds of wine to one third of water; if the parts appeared inſenſible, and no pain at all was produced by the firſt quantity thrown in, I have withdrawn the ſyringe, and added to the proportion of wine; on the contrary, if the complaint was recent, and the parts irritable, I have increaſed the proportion of water, ſo that I have hitherto been principally guided by the degree of ſenſation which the patient has expreſſed. I have lately uſed pure water mixed with wine, and found it anſwer as well as when aſtringents were added.

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The inſtrument which I formerly uſed, was a pipe with a ſtop cock; but finding this inconvenient, and requiring a third hand to turn it, I ſubſtituted a valve which permits the entrance, prevents the return of the fluid from the ſac, and performs the buſineſs with much more eaſe and preciſion:—It is made to fit into the cannula of a trochar, and to receive the beak of a ſyringe of a moderate ſize, which may be applied and removed at pleaſure. I have generally uſed the vegetable bottle, which anſwers extremely well; but great care ſhould be taken, that it be perfectly filled with the injection, otherwiſe it will, by its elaſtic power, draw in a quantity of air, which may prove very embarraſſing in the operation.

Case VI.

The next caſe which came under my care was a Hydrocele in the perſon of a middle

middle aged man. As I was in ſearch after a ſafe and eaſy method of curing this complaint, I was pleaſed to find an external application ſtrongly recommended as capable of diſcuſſing and curing it, by a gentleman of whoſe judgment and humanity I have the higheſt opinion. Although I had ſucceeded ſo well by injection, an external waſh being more eaſily applicable, I was induced to give it a fair trial. May 5, the tumor was wrapped in cloths, wet with a ſolution of ſal amoniac in acet. et ſpt. vin. After uſing it two days the patient complained ſo much of inflammation and irritation, attended with darting pains in the ſcrotum, that I was obliged to omit it for a day or two; after which time he uſed it lowered with a little water. May 27, after having continued this application nineteen days, I could find no ſenſible difference in the ſize or appearance of the tumor, except that the ſkin was corrugated

gated and inflamed from the irritation of the application. May 30, no senſible alteration; he continued to uſe it, with now and then a ſmall interval, till the 22d of June, when, tired at finding no benefit, he would not ſubmit to any other operation, as was propoſed to him, but choſe to leave the hoſpital.

Case VII.

An intelligent gentleman, who had been in the medical line in India, ſhewed me a Hydrocele on each ſide; we talked over all the uſual modes of curing the complaint; but he did not ſeem ſatisfied with either of them. I mentioned the ſolution of the ſal amon. and recommended him to give it a fair trial. He accordingly applied it, as it is directed; but, as it happened in the inſtance juſt mentioned, it produced ſo much inflammation, that he was obliged to deſiſt.

He

He afterwards ufed it for near three months, at the end of which period, May 31, 1789, he again fhewed me the tumors; but there was no perceptible dimunition in their fize.

Case VIII.

November 5, 1788, I took a young man under my care, who had apparently a Hydrocele; but it was one of thofe cafes of which, on account of the tightnefs with which the coats enveloped the water, and from the thicknefs of the fcrotum, we could not pofitively at once determine the nature: however, after repeated examination, being convinced that it was a Hydrocele, and, from its recent appearance, a favourable cafe, I immediately began to treat it, with an external application of a folution of fal amon. but after feventeen days, finding no kind of advantage, and the man being impatient and anxious to

return

return to his friends, I determined to uſe the injection. November 22, I let out about five ounces of clear fluid, found the teſtis in a good ſtate, though enlarged, which, as I obſerved, is frequently, I might ſay generally, the caſe. I then filled the cavity with injection, in the preſence of a number of gentlemen, and kept it in a few minutes; he complained of ſo little pain that I was apprehenſive, and I believe all who were preſent concluded, that what I had done was to no purpoſe; that is, that there would not be ſufficient irritation to produce the neceſſary inflammation. He continued without pain the whole of that day and the next; the third day he was perfectly eaſy, but a gentle inflammation had taken poſſeſſion of the whole ſcrotum, equally in every part: the fifth day the inflammation continued as before, and the ſwelling was ſo free from pain, that it had ſtrongly the appearance

 of

of a fresh collection of fluid; but, as this deception had several times occurred to me before, I did not the less expect a cure. On the seventh day from the operation the appearances were very similar, the man void of pain, the scrotum gently tumefied, from which time the scrotum began to corrugate, and the tumour gradually to decrease, till in less than three weeks it became of the size of the testicle, when the water was let out. I kept him in the house till the 21st of December, to observe if any fresh accumulation took place, when being perfectly well, he was discharged.

Case IX.

A gentleman was introduced to me by Dr. Grieve, with a Hydrocele which had been treated with the same discutient, and which he had found so painful that the surgeon was obliged to lower it; it was continued,

as ſtrong as he could bear, during five weeks, when the water, not being leſſened, was let out, after which the application was again made uſe of during the evacuated ſtate of the complaint; but it had not prevented the re-accumulation of the water.

It would certainly be a moſt deſirable plan, to get rid of the diſeaſe without any operation; but we know too well how confined our powers are in diſperſing collections of fluids within ſacculi mucoſi, and ſome kinds of encyſted tumors, whoſe integuments are comparatively thin, and therefore muſt conceive, that much greater power would be requiſite to act through the ſcrotum and thickened tunica vaginalis, ſo as to produce abſorption of the fluid and coheſion of the tunics.

Hydroceles have been accidentally diſperſed by various means, particularly by a blow, by a fever, and by ſickneſs at ſea.

I do not entertain the ſmalleſt doubt, that the above remedy, which has been propoſed by an ingenious and able practitioner, has produced the ſame effect; but I cannot help doubting its capability of frequently producing it, from theſe and many other inſtances I have been witneſs to, and have been informed of, in which it has been equally unſucceſsful.

The above gentleman, ſome time after, put himſelf under my care; I let out a moderate quantity of fluid, and threw in ſome injection. The inflammation which was produced in this caſe was ſo moderate that he would not ſubmit to be confined; but in two or three days after the operation, notwithſtanding the teſtis was evidently inflamed and larger than natural, went out and took his uſual exerciſe. This brought on ſo much ſwelling as made him content to ſtay at home a fortnight, during which time it increaſed in ſize, and gradually

dually leſſened; but at no time was at all painful, unleſs it was handled. Though, from the little attention paid to it at firſt, the tumefaction in this caſe had been rather obſtinate, it was, in about three weeks, ſo nearly ſubſided, that he went out of town, with every appearance of the accompliſhment of a perfect cure. I have ſeen him many times ſince, and there is no appearance of his ever having had a Hydrocele.

Case X.

Mr. Pitts evacuated a large Hydrocele of a middle aged man; the teſticle was found larger and harder than uſual; he permitted me to throw in an injection, which, on account of the ſize and thickneſs of the parts, I had made rather ſtronger than uſual; there was not quite enough to fill it, but I preſſed it ſo as to

make it find its way over the whole cavity, and suffered it to remain in six minutes. I did not see him again till the fifth day; the scrotum was considerably inflamed, and tender to the touch. I directed him to remain in bed, and to apply a poultice made with extract saturn. the next day the inflammation was lessened, and he was free from pain, and the tumor began to subside. There is so great similarity in the progress of these cases, that I have only to say the inflammation continued gradually to lessen, and in less than a month the testis was of its natural size, and the man was discharged. He has since been in the hospital for another complaint, and we have had opportunities of examining the part; the adhesion appears to have universally taken place, and consequently there is not the least vestige of the Hydrocele.

Case XI.

February 7th, 1789, I emptied the Hydrocele of a young man, let out a moderate ſize tea-cup of fluid, threw in the ſame quantity of injection, and kept it in three minutes; the patient complained of ſome pain ſhooting toward his back: the 9th he had no pain; the inflammation very moderate: the 10th no great alteration; but I obſerved, what indeed I had often before remarked, that the ſcrotum appeared diſtended, as if again filling with water. The inflammation continued to proceed moderately, and gradually to ſubſide. The patient was ſo free from pain and every complaint, that he choſe to leave the houſe in leſs than three weeks; and, indeed before the ſwelling was quite gone, to follow his occupation of a tide-waiter. I have ſince had many opportunities of ſeeing

him and examining the part; the adhesion appears perfect, and the disease completely cured.

Case XII.

March 6th, 1789, I went with Mr. R. Croft, of Burlington-Street, to see a young man who had a Hydrocele on each side. Mr. Croft had once performed the palliative cure on the left, which was now filled again, and was much larger than the other. I let out a large quantity of fluid, and found the testis in a good state, though larger than natural. I introduced sufficient injection to distend the bag, and kept it in four minutes; the man complained of some pain when it was first thrown in, but was perfectly easy before the four minutes were expired. I then proceeded to evacuate the other; but as the quantity of water was small, and I could

could not ſafely introduce the inſtrument which I generally uſe for the purpoſe of injecting, I contented myſelf with emptying it by means of a ſmall trochar, and found the teſtis large in proportion to the ſize of the tumor; I withdrew the cannula, and recollecting the obſervation that "Tua res agitur paries cum proximus "ardet," left it to take the chance of what might follow from partaking of the neighbouring inflammation which I expected to take place. Mr. Croft ſaw him the next day, and gave me an account that he had riſen, and was walking about the room, and that the parts were beginning to ſwell. As this was greater liberty than I had yet given, I begged he might immediately go to bed, and have a poultice applied. I viſited him next day, and found more inflammation than I had ever ſeen after this operation; and, what appeared extraordinary and fortunate, the ſide

which had not been injected was almost as much inflamed as the other; but he complained not of the smallest pain in either. The 14th, I saw him again; he continued free from pain, and the inflammation was very much abated. The side which had not been injected appeared less likely to diminish than the other; and the apparent feel of fluid which I observed often follows, was more than usually perceptible. On the 20th, a fortnight from the operation, the side on which the injection had been used was perfectly well; in the other the water was evidently collecting very fast; which demonstrates how little effect external inflammation can have when it is to act through the scrotum and tunica vaginalis, and points out the greater certainty which follows the application of the stimulus to the inside of the cavity: in this case, notwithstanding the water was evacuated, and considerable inflammation

was

was raiſed on the ſcrotum, no internal effect was produced. I took leave of him, recommending him to do nothing farther till it was ſufficiently full to be treated in the ſame manner.

Case XIII.

Mr. Croft continued to ſee him from time to time, and gave me an account that the ſide which had been injected, remained perfectly well; but that the other was large, and he wiſhed me to perform the ſame operation on it. May the 2d, I examined it, and found the left ſide perfectly well, and free from water; the right diſtended, but not very large. I plainly diſcovered, through the water, that the teſtis was larger than it ought to be; and it was not without great care, that I was able to paſs in the trochar without injuring it. I let out about five ounces of fluid, filled it with injection, and treated

treated it in every refpect like the other. I faw him two days after; he faid he had paffed a reftlefs night, and the part was more inflamed and tumefied than ufual; on inquiry, I found he had eaten a dinner of roaft beef and drank porter. After taking a little opening medicine, and ufing a lower regimen, in two days the tumor was lefs, and the inflammation more moderate. In about the ufual time he got well; and, I have been informed, he continues perfectly free from any complaint on either fide.

Case XIV.

May 16, 1789, I let out about five ounces of a ftraw-coloured fluid from the Hydrocele of a young man, and threw in an injection; he complained of pain during the firft three minutes, when he grew eafy: in five minutes the injection was difcharged. This proceeded, in every refpect, like thofe

I have

I have related, with a very moderate inflammation, which decreaſed gradually.

He has ſince applied to me, with a venereal ſwelling in both his teſtes; which, by means of mercurial frictions in the internal parts of his thighs, are both decreaſing, but there is not the ſmalleſt ſign of his ever having had water in either.

Case XV.

In the autumn of the ſame year a gentleman came from Barbadoes, on purpoſe to be cured of a large Hydrocele. With his conſent, I intended to uſe the method by injection; but, at the inſtant when I had paſſed in the trochar, with a violent involuntary motion of his body he forced it out with the cannula, by which accident a ſmall quantity of water only followed through the external orifice, but a conſiderable portion eſcaped from the tunica vaginalis,

vaginalis, and infinuated itſelf into the cellular membrane of the ſcrotum, making a large ſwelling, which put a total ſtop to the intended operation. As his time was limited, and he was anxious to return, he preſſed me to perform immediately the operation by inciſion, or by any other method; however, I perſuaded him to wait a fortnight, by which time the extravaſated fluid was nearly abſorbed: but, as the quantity which remained in the tunica vaginalis was ſmall, and conſequently the cavity was become leſs capacious; and as he was ſo particularly circumſtanced with regard to leaving this country, I did not chooſe to try the injection, but there being juſt ſufficient room for the inſtrument to paſs ſafely, I performed the operation by the ſeton.

This caſe terminated well, and the gentleman is returned perfectly cured; but it was attended in its progreſs with an abſceſs, the conſequence of a much greater degree

of inflammation than I have ever experienced from the uſe of injection, and indeed abundantly more than was neceſſary for the cure.

The accident by which the inſtrument was forced out may ſerve as a caution, and point out the propriety of placing the patient againſt a table, or upon a couch, or in any ſituation in which it will not be in his power to recede.

Case XVI.

About the ſame time I injected the Hydrocele of an Iriſh gentleman, aged 30. He felt little pain while the injection was in; the next day the inflammation was moderate, and proceeded in a gentle manner, with ſcarcely any variation from moſt of thoſe caſes in which I had uſed injection, and whoſe progreſs I have deſcribed; it is therefore unneceſſary to take up more of the reader's

reader's time in particularizing the ſymptoms. I will only add, that he was perfectly cured.

Case XVII.

March 9, 1790, a gentleman from Nottinghamſhire applied to me with a Hydrocele on the left ſide; ſome few years before he had been troubled with the ſame complaint on the other, which had been cured by Mr. Pott by the ſeton, and continued perfectly well. I mentioned to him the method which I had adopted, and he agreed to give it a trial. Aſſiſted by Mr. Long, I emptied the bag, which was not large, and filled it with injection, which was retained about the uſual time; he complained of little pain either during the operation or afterwards; the inflammation increaſed gradually, and ſo diminiſhed; in a week after the operation he was permitted to walk,

and in three weeks he was well enough to return into the country. In December, 1790, I received an account from himſelf, aſſuring me of his perfect recovery. As he had undergone the two different methods of cure, he was a competent judge with regard to pain and inconvenience attending both, and I make no ſcruple in aſſerting, that he warmly declared his preference to the injection.

Case XVIII.

The Rev. Mr. ——— ſhewed me a very large Hydrocele, which he deſired me to cure by injection. April 15, 1790, having drawn off a large quantity of water, I re-filled it with injection of moderate ſtrength, and retained it ſeven minutes, during which time he felt little pain; in the afternoon had a ſlight attack of pain; next day was perfectly eaſy, though there had ariſen a ſuffi-

cient inflammation, which increaſed gently, and gradually ſubſided, without pain or inconvenience. On the 4th of May he was well enough to go to his living in Huntingdonſhire.

In November the ſame year, he did me the favour to call in Hanover Square, and permitted me to examine the part; it appeared ſo perfectly well, that, had it not been for a tuck in the ſkin where the water had formerly been let out by a lancet, and an adheſion had taken place between the ſcrotum and tunica vaginalis, it would have been difficult to have diſtinguiſhed the ſide where the diſeaſe had been from the other.

Case XIX.

I saw Captain —— with an uncommonly large and much diſtended Hydrocele, which, from having been continually preſſed on by a ſuſpenſory, and tight breeches, had a remarkably

markably broad basis, which reached from high up on one groin across the scrotum to the other thigh; I observed a large scar or cicatrix almost the whole length of it: the account he gave me of it was, that about a year and a quarter before, the *operation of incision* had been performed on it in Ireland; that so soon as the wound was healed, the water began to collect again; that he had suffered so severely by the operation, and by the subsequent treatment, that he was determined to ask no further advice on it, till, having been so long accumulating, it was from its size become intolerable: it was indeed so large, and the tunic so much thickened, that I objected to performing any but the palliative operation, and recommended him to put off the attempt to cure it radically till it should fill again, and become of a more moderate size: however, as it would have been very inconvenient to him to come back again from Ireland, and as the injec-

 tion

tion could do no harm, if it did not ſucceed, I was induced to riſk the credit of it; accordingly I emptied the bag, and threw in a very large quantity of the injection. He complained of a good deal of pain during the greateſt part of the time it remained in, which was about ſeven minutes; conſiderable inflammation ſucceeded, and next day it appeared nearly as large as before it was let out, but he was quite free from pain: it continued inflamed and ſwelled for ſeveral days, when it gradually leſſened; at the end of a fortnight it was nearly ſubſided, and he was permitted to walk about the room: on the 6th of May he went to his friend's houſe at Hampſtead; the 7th I ſaw him; there appeared no more ſwelling than was cauſed by the ſtill prodigiouſly large and thickened tunica vaginalis which had contained ſo much fluid, but there was no ſign of any freſh accumulation: he had not the ſmalleſt pain, and took his exerciſe

as uſual. I ſaw him ſome time after, and the whole tumor was conſiderably leſſened: he is ſince returned to Ireland; but, from his friends who reſide in London, I have continual opportunities of knowing that he remains perfectly free from any return of his complaint. This caſe is more in favour of injection than any I have ſeen, as, from the great diſtention and ſize of it, there was the greateſt improbability of the parts being brought ſufficiently into contact to bring about an univerſal coheſion.

Case XX.

May 4, 1790, I injected the Hydrocele of a patient of Mr. Pitts, which was large, but the ſac thin; he complained of ſome pain during the operation, which ceaſed before the injection was withdrawn: next day he was perfectly eaſy; a gentle inflammation took place, which proceeded in

every respect as usual. I have seen him since, and he continues perfectly well.

Case XXI.

The following case may prove an useful caution to future operators. A gentleman attempted to perform the operation of injecting a Hydrocele; but after he had passed the trochar and evacuated the water, before he had his apparatus and injection ready, by some accident the cannula slipped out of the sac of the Hydrocele; when he attempted to throw in the wine it met with resistance, notwithstanding which he forced it in, till finding the whole scrotum on both sides uniformly increased in bulk, he began to suspect that he was not filling the cavity of the tunica vaginalis, on which he attempted to evacuate it, and get rid of what he had thrown in, but it was impossible. The injection having diffused itself

among the cellular membrane under the ſcrotum, he was obliged to leave it there; in conſequence of which violent inflamma-tion, and a mortification and ſlough of the ſcrotum, followed, and left the teſtes bare; the patient however recovered.

I have been informed of another caſe, in which ſome portion of the injection was ſuf-fered to be diffuſed in the cellular mem-brane under the ſkin, which formed ſome ſmall abſceſſes. If the operation be rightly performed this can never happen; or if by chance the cannula ſhould ſlip out of the tunic, the completion of the operation pro hâc vice ſhould be ſuſpended*.

CASE

* I have ſince heard of ſeveral caſes in which this ac-cident of cauſing the injection to be diffuſed into the cel-lular ſubſtance of the ſcrotum has happened, and the conſequence has been great inflammation and ſloughing of the parts. This moſt unpleaſant and dangerous occur-rence may always be prevented if the operator will uſe a cannula of ſufficient length, and never throw in the in-jection

CASE. XXII.

SEPTEMBER 1790, a gentleman of the profeſſion from Barbadoes applied to me; he ſaid he had had a Hydrocele on the right ſide, which, after having tried to cure by the ſal ammon. both in the full and empty ſtate, in vain, had been cured by the ſeton, the marks of which were viſible by the tucking in of the ſkin where the ſeton had paſſed. It remained perfectly well; but he now laboured under the ſame complaint on the left. I let out the water, which was in ſmall quantity, as the teſtis itſelf was very large and occupied the greateſt part of the

jection till he feels the end of the pipe within the vaginal ſac. However, if from awkwardneſs, inattention, or want of ſkill, it ſhould happen, I would recommend to make two or three punctures with a lancet, then to preſs or ſqueeze out as much as poſſible, to dilute the remainder by throwing in warm water, and again to preſs or ſqueeze it out.

tumor, yet did not appear ſo hard or ſo diſeaſed as to forbid an attempt to cure the Hydrocele. I filled the cavity with injection, which gave little pain; ſufficient inflammation ſucceeded, which gradually ſubſided: in leſs than a fortnight he was perfectly well, and went out about his buſineſs as uſual; he aſſured me he found the injection an incomparably eaſier mode than the ſeton.

Case XXIII.

October 1790, a gentleman ſhewed me a Hydrocele of moderate ſize, which he had been endeavouring to diſcuſs with the ſolution of ſal ammoniac, and had tried it to the full extent of its powers; but, though it had raiſed great inflammation on the ſcrotum, had produced no effect in leſſening the tumor. In the preſence of Dr. Hallifax and Mr. Serjeant Hawkins, I drew off its

contents, which were not remarkable in quantity or quality.'

'The patient appeared to be of a very irritable habit, complained of pain in his testis before the water was discharged, and his pain increased when the bag was empty; I threw in an injection of moderate strength, from which he also expressed more than usual pain while it was retained, and after it was discharged; this was much augmented by being obliged to go up stairs to his bed. Though the sensation which he expressed was very uncommon, it may serve as a caution against performing the operation out of the bed room; when in bed he continued to complain, yet not of the testis, but of an aching in his back and kidneys, to which, however, he said he had been much subject: he took a gentle anodyne, and the pain subsided in about an hour and a half, after which he grew easy, and so

continued

continued all day. The next day there was ſome tenſion on the part, but the patient was perfectly eaſy; in the afternoon he got up and lay on a couch, and two days after went into the next room. The inflammation and tenſion increaſed gradually, and ſeemed at the height about the ſeventh day, after which it leſſened; he was now only ſenſible of weight in the part. The tenth day he went down ſtairs, walked about, and ſat on his couch; indeed, being of a lively and active diſpoſition, he was not ſo attentive to keep in a quiet poſture as I could have wiſhed; however no accident to the part, nor impediment to its diminution, occurred; it gradually ſubſided, which, about the fourteenth, I haſtened by a more powerful antiphlogiſtic application; ſoon after which time he went out in his carriage. November 12, three weeks from the operation, I examined the part; there was no inflammation remaining; it was free from fluid,

fluid, and no bigger than what was produced by the large and thickened tunic wrapping round the testicle. I have repeatedly heard from him since, and he remains perfectly well *.

On the same day, 5th of October, I performed the palliative cure on the Hydrocele of a young gentleman, and the only reason for my noticing it is, that on examining it

* This gentleman was afterwards attacked by a Hydrocele on the other side: finding it considerably enlarged and inconvenient, he was coming to London to submit to a similar process. On the road he caught cold, the roughness and the length of the journey caused the scrotum and testicle to swell and inflame; so that when he arrived at the hotel, it was much increased in size, and in a distended painful state. To take off some part of the tension, I evacuated the water; the inflammation lessened, but sufficient remained to produce a perfect cure of the complaint, without any additional stimulus; a rather uncommon instance of such effect being produced by such a cause. He is now (Dec. 10, 1804) without any symptom of Hydrocele in either side.

the

the 14th, nine days from the operation, there was an evident fluctuation of re-accumulated fluid; which is a proof that it is not neceſſary to wait long before we may be convinced of the cure, or the return of the complaint, though the contrary doctrine has been advanced.

Case XXIV.

February 1791, a gentleman from India conſulted me on account of a large Hydrocele which had been collecting more than three years, and for which he wiſhed to obtain a radical cure. As it was of conſiderable magnitude, and had never been emptied, I adviſed him to content himſelf, for the preſent, with the palliative cure; I let out about twenty ounces of ſtraw coloured water, and found the teſtis much enlarged and the tunics apparently much thickened; the water ſoon began again gradually to

collect.

collect. I ſaw him now and then till May following, when it was full enough to be ſubmitted to the radical cure, and the mode by injection was determined on. After having paſſed in the trochar, while the fluid was running out, by ſome accident, the ſac contracted quicker than the ſcrotum, and let the cannula ſlip out. I was not able again to find the opening through which it had paſſed into the ſac, though it was ſufficiently open to permit part of the water to flow out of the ſac, and inſinuate itſelf into the cellular membrane of the ſcrotum; I therefore immediately deſiſted from the intention of completing the operation at that time. Though the quantity of extravaſated fluid was conſiderable, it was attended with little inconvenience, and was ſoon abſorbed: the Hydrocele filled again as uſual; and in June following, it not being then convenient to him to undergo a radical cure, I

again let out about the ſame quantity as it firſt contained.

About the ſame time a gentleman called on me from Oxfordſhire, with a large ſwelling in the ſcrotum: the account which he gave me was, that the origin of it he could not account for, but that it had been gradually increaſing for a great length of time, till about a twelvemonth preceding it was very large, and while it was in that ſtate he had the misfortune of a ſevere fall from his horſe; when he got home he perceived the whole ſcrotum enlarged, and the part where was the original ſwelling, ſmaller and ſofter; the ſkin was black from the bruiſe, but the whole of the ſwelling gradually went away, and he concluded he had got rid of his Hydrocele. However, he ſoon found that he was miſtaken, as it ſoon began to be again diſtended, and in ſix months was as large as before. Notwithſtanding the failure of ſucceſs from it being thus burſt, he was determined

determined to try a similar operation, and therefore imprudently struck it with violence against a table; the same consequences followed as were produced by the fall, the sac was burst, the fluid found its way into the cellular membrane, and was, as before, gradually re-absorbed; and he again found himself disappointed of a cure, as the Hydrocele again began to collect, and in six months more was as large as ever. He did not choose to push his own experiments further, but came to London to consult me, and wished me to perform the radical cure. It now appeared large, and much distended; but, as it was impossible to say what mischief had been done to the testicle by the violence which had been offered to it, and consequently I could not determine whether it was in a fit state to bear the necessary inflammation, I recommended the simple puncture to be first tried. On passing the trochar I was not surprised to find the

fluid

fluid very deeply tinged with blood; the teſtis however did not appear to be much injured, though larger than natural. When he left me it was his intention to return to town as ſoon as it ſhould again be filled.

I have mentioned theſe two inſtances in confirmation of what I before advanced, that it is not neceſſary in theſe caſes of extravaſation to perform the inciſion, or any other operation, only to wait with patience, and Nature will do her own work of abſorption, which indeed may be promoted by the uſual diſcutient applications.

Case XXV.

January 1791, Mr. —— ſhewed me a large tumor in the ſcrotum; he ſaid he had perceived a ſmall ſwelling in the part ſome years; that it had been long ſtationary as to ſize, and ſoft; and he always imagined it to be air. This was, probably, one of thoſe

kinds of Hydrocele which do not increaſe without a freſh cauſe, of which I have ſeen ſome inſtances. He had lately been thrown from his horſe, and had bruiſed it greatly; when he was recovered from his external bruiſes he found the ſcrotum much enlarged and diſtended. I repreſented to him that it was filled with fluid, that probably the teſtis had been bruiſed, and that what before had been a ſimple Hydrocele, was now increaſed by an addition of blood. He wiſhed the radical cure to be performed, but I recommended the ſimple puncture to be firſt tried, as it was not clear how far the teſticle was concerned in the ſwelling: this was performed with caution, and with the point of a lancet. As I expected, a fluid immediately ruſhed out, of which blood appeared to conſtitute much the major part. As the nature of the caſe was now clear, which was all the information we wanted, and as the fluid did not freely follow through the ſmall punc-

ture,

ture, the orifice was clofed and fuffered to heal. March 6, 1791, it appeared again very full and turgid. As he now chofe to have the radical cure performed, I paffed in a trochar, and let out about three parts of a pint of pellucid ftraw-coloured water. Here I muft remark a fact which perhaps is difficult to be accounted for; the fluid which was left in the fac in January, was evidently compofed of blood and water; from that time it continued to fill again, and when it was now let out it was perfectly free from blood, fo that the abforbents, on the furface of the membranes, appeared, in this cafe, to have had the power of feparating the red globules from the aqueous particles, and abforbing them; at the fame time the water, fo far from diminifhing, was increafed.

I threw in fome injection, and he complained of little pain; he continued with fcarcely any uneafinefs all the day, but in the night was feized with a gouty cholic, to

which he was much ſubject, and which he thought he had now brought on by abſtinence, which he had obſerved ſome days previous to the operation; this gave him a reſtleſs night, but he did not feel pain in the part. The next day he was well of this attack, and the part looked well, with rather more inflammation than uſual, probably owing to the reſtleſſneſs of the night; however, the ſixth day from the operation both ſwelling and inflammation were gradually ſubſiding, and on the fourteenth all inflammation and tenderneſs were wholly diſſipated; the ſeventeenth he went out in a carriage, free from any pain or inconvenience; the complaint was completely got rid of, and he remains perfectly well.

Case XXVI.

April 26, 1791, I was deſired by Mr. Long to uſe the injection in a Hydrocele of

a middle aged man; the perſon ſaid, ſeveral months before, he had overſtrained himſelf in mowing, and had felt a violent pain, which he deſcribed to have been in the ſpermatic chord, reaching up to the loins; that the chord ſwelled and inflamed, and afterwards, as that ſubſided, the Hydrocele began to collect below. I had ſeen the complaint in conſultation ſome months before, when, though it was diſtended uncommonly high into the ring, we had concluded it to be a Hydrocele of the tunica vaginalis, and Mr. Long let it out by a puncture. Immediately after the operation a violent and very unuſual pain, with ſubſequent inflammation, attacked the chord, which continued in a conſiderable degree, but did not, as was expected, produce a cure; the water again began to accumulate, and on that taking place the inflammatory ſymptoms ſeemed to ſubſide. Theſe unuſual complaints ſhewed ſomething peculiar in the

case, or an uncommonly irritable habit; but as the Hydrocele was again filled, I saw no objection to performing the operation for the radical cure. When I had punctured the bag, and was drawing off the water, in which there was nothing remarkable, he complained of great pain shooting up towards the kidneys on that side; on throwing in the injection he also complained more than common, but when the bag was completely filled, the pain subsided, and the injection was retained the usual time. The next day the part was more tumefied, and the chord more affected than generally happens, his pulse moderate, with no feverish symptoms; the following day he was somewhat better. The 3d of May, seven days from the operation, the tumor was much lessened, he felt no pain, and the scrotum was beginning to corrugate. I saw him again on the 9th of May, when he was able to walk and take his usual exercise. In

about

about three weeks from the operation he was well, and returned into the country, being perfectly cured of his Hydrocele.

Case XXVII.

June 26, 1791. A gentleman who had ſuffered much in his own perſon by the operation of inciſion for the cure of a Hydrocele, having been confined by it nearly ſix months, deſired me to ſee his nephew, about nine years of age, who had a complaint of that kind. It was for ſo young a ſubject very large, the ſac very thin and tranſparent. I was informed by his father that it had been emptied in the country, that it had filled again in a few days, and that in a fortnight it was as large as ever. This account was confirmed by the ſurgeon who performed the operation: the ſhortneſs of the time in which the water had re-accumulated appeared extraordinary,

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and very different from the common Hydrocele, which usually is filled by small, and often by scarcely perceptible degrees. Not long before, I had seen a complaint in a boy of about the same age, in which there was some similarity of circumstances with the present case, and which an attempt had been made to cure by incision, but it filled again; after which it was simply let out by a trochar, and the water returned in a very short time. This was supposed to happen from a communication with the abdomen, by which opening moisture, collected within the peritoneal lining of the abdomen, was said to drop down into the tunica vaginalis testis, and thus again quickly to distend it. Though I had not an opportunity of being completely satisfied of the nature of that case, I thought probably this arose from a similar cause, whatever that might be; at least it was evident that there were some peculiarities attending it, and therefore, though

pressed

preſſed to perform the operation of injection, I declined doing it at firſt, and adviſed the ſimple evacuation, to give me an opportunity of obſerving the manner of its refilling, and alſo of taking it at a more favourable period, when it ſhould not be ſo much diſtended. Accordingly I let out a conſiderable quantity of a ſtraw-coloured fluid, and found the teſtis in a good ſtate. The next day ſome water was palpably collected, and in two days after, there was a conſiderable quantity—in leſs than a fortnight it was nearly as large as when I let it out. Theſe circumſtances being new, and as I had not performed it on ſo young a perſon, I thought proper to mention them to his friends, and not to give poſitive or even ſanguine hopes of ſucceſs. When the operation was reſolved on, he caught the meaſles, which obliged us to defer it. July 25, he was ſufficiently recovered to undergo it; accordingly I let out the water, and taking

care

care to preſs with my finger and thumb the upper part of the chord, ſo as to prevent any communication with the cavity of the abdomen, introduced the injection of nearly the uſual ſtrength. He complained of ſome, but not violent pain, for a few minutes. In ſix minutes it was diſcharged; in the evening a ſmall degree of inflammation had taken place on the part; the following day it was increaſed in ſize equal to what it was before it was emptied. The little patient had a perfectly good night, and had not felt any pain ſince the operation. As he was becoming rather heated, though, as I conceive, more from the irritability of conſtitution, which he derived from the meaſles, of which he was juſt recovered, than from the inflammation of the part, which was moderate and perfectly indolent, a clyſter and ſome ſaline draughts were adminiſtered. In the evening he was cooler and perfectly eaſy, the part rather more ſwelled, but

without

without pain or apparent inflammation. The third day from the operation it continued to increase, and the whole scrotum was considerably tumefied, and seemed aggravated by the fever, which still continued. I could not but look on the fever as independent of the complaint, as there was no inflammation or pain attending which could cause it. The 4th day the fever was much better, and the swelling began to diminish, and so continued in a gradual state of subsidence. On the 7th it was evidently much diminished, and in a fortnight was reduced to little more than the previous distention of the tunic might be supposed to produce—he soon after got well enough to be sent to school. November 9th, his father assured me he continued well; I have seen him since, and he remains without any vestige of a Hydrocele. I may add, that he is now at the age of twenty-two perfectly free from any complaint of the kind.

Case XXVIII.

August 4, 1791, I injected the Hydrocele of a young man of the family of his Grace the Duke of B. which I had once previously evacuated, and had suffered to gain a moderate size. He felt some pain during about half an hour, in the afternoon—in the evening was perfectly easy; a slight inflammation had seized the part, which was increased the next morning, attended with some swelling, but no pain. It went on as usual, and though the man took improper liberties in using great exercise, particularly by running up and down stairs very early after the operation, no accident occurred, and he got perfectly well.

Case XXIX.

October 28, 1791, I was defired to fee a gentleman in Artillery-Place, who had a very large Hydrocele, of the caufe of which he gave the following account: that he was afleep in his bed-room up two pair of ftairs, when he was alarmed with his houfe being on fire; he ran to the window and opened it, at the inftant a large quantity of fpirit of turpentine below ftairs took fire, and made a violent explofion; exceffively terrified, and fcarcely awake, he threw himfelf out of the window, and fell into the road. Though bruifed and injured in the greateft degree in many parts of his body, limbs, and face, he miraculoufly recovered. Soon after he was able to move about, he perceived a fwelling in the fcrotum, which increafed to a great degree, and formed a Hydrocele. This, at different periods, he had fuffered to be eva-

cuated ſix times. Tired of the continuance of ſo great an inconvenience, he wiſhed to have a radical cure performed, and diſapproving of the uſual methods, he preferred the mode by injection. It had now been collecting nine months, and was ſo large that I doubted of the ſucceſs, but as I had ſucceeded in one of greater magnitude, and he was deſirous to try it, I was induced to make the attempt. He was of a ſallow unhealthy complexion, having never perfectly recovered of his internal bruiſes; and I was informed that he was of a very irritable habit, and had always felt great pain after the ſimple evacuation. I therefore prepared the injection much more diluted than uſual. I let out above three half pints of a greeniſh fluid, and returned a large quantity of injection. He now complained of conſiderable pain leading up toward the kidney on the ſame ſide, but he ſaid little more than he had been accuſtomed to feel from ſimple

evacuation.

evacuation. After detaining the injection the usual time he was put to bed; as he still continued to feel pain, an opiate was given. However, as I afterwards learned, he grew sick, as was his custom after the simple evacuation, and brought up the opiate, so that its effect was lost, and as it was not repeated, his pain continued. In about three hours it left him; he passed a good afternoon and an easy night; the next day I found him with the scrotum considerably enlarged and tumefied, but perfectly easy.—The following day it was more enlarged, being more than half the size before the water was evacuated. On the 4th day, as I had left him so well the day before, I missed seeing him; but on the 5th, I found that he had been seized with sickness, a complaint to which he was very subject, and had vomited incessantly for two hours, notwithstanding every assistance from his very intelligent apothecary. He was languid, the part was considerably more swelled,

ſwelled, and he felt a pain in the chord leading toward the kidney and bladder. It was however, on the whole, much better than could have been expected from ſuch violent efforts of ſtraining. A ſtool was procured by a clyſter, and the next day he was better, the tumor nearly the ſame. November 10, he ſtill complained of pain in the chord, which was harder, and had partaken more of the inflammation than uſual, owing to the violence of vomiting, and the whole tumor continued very large. 11th, The patient informed me that it was certainly diminiſhing. On enquiry why he ſpoke ſo poſitively, he informed me that when it was at the largeſt he had meaſured it by a rule, when it was in length ſeven inches and a half by ſixteen inches in circumference, that now it was ſix inches and a half in length; and afterwards it continued to leſſen daily near half an inch in length, and ſomething more in diameter. Thus by

line

line and rule we were satisfied that the size of the tumor arose from inflammation only, and not from accumulating fluid. 16th November, it was lessened to four inches and a half by ten; in about a week after it subsided to less than three inches; soon after he got perfectly well, and has continued ever since free from any fresh collection. This is an instance of the impropriety of performing the operation on a Hydrocele when so much distended. I was induced to do it by the desire of the patient, but it is better to take an opportunity when it is smaller, as the quantity of inflammation, and the continuance of it, is generally in proportion to the size.

Case XXX.

October 30, 1791, a gentleman from a distant county shewed me a Hydrocele, with an intention of submitting to a radical cure;

but as it was remarkably large, and had not before been evacuated, I perſuaded him to have it ſimply let out, and to wait till it ſhould fill again to a more moderate ſize. At the inſtant when the trochar was paſſed in, he jerked back with ſuch velocity as to pull it out again, by which means only a part of the water was drawn off, ſo that there was not ſufficient to admit of any other operation, nor was it totally emptied. Nothing remarkable appeared in the fluid which came away, and it was determined that the radical cure ſhould be performed when more ſhould be collected. He went into the country, and returned February 11, 1792. The tumor was not quite ſo large as before, and in every reſpect a good ſubject for the operation which it was agreed to perform. As he appeared to be of a diſpoſition timorous and eaſily ſuſceptible of alarm, and as he had given me the ſlip on the former occaſion, with a view to effectually

ſecure

ſecure him, he was laid on a bed. The trochar was then fairly paſſed in, the water all drawn off, and thus the moſt difficult part of the operation being over, no doubt was entertained of the completion of it; accordingly I began to throw in the injection: the firſt ſyringe full was nearly thrown in, when he ſaid he felt a pain, and being greatly alarmed, he contrived to draw himſelf backward with velocity on the bed. When he was quiet I attempted to throw in more, but ſoon perceived that what paſſed from the ſyringe did not fill the ſac; it was now evident that in the effort which he had made he had forced the cannula out of the ſac, and it was in vain to endeavour to throw in more. This was an embarraſſing circumſtance, however the only thing which remained to be done, was to get it out again both from the ſac and alſo what was diffuſed in the cellular membrane of the ſcrotum, leſt by remaining it ſhould do miſchief by

raiſing an inflammation, as was mentioned to have happened in Caſe No. XXI. I therefore preſſed it out of the ſac, and it formed a ſmall ſwelling at the lower part of the ſcrotum; this I opened with the point of a lancet, and emptied as accurately as I was able, by taking great pains, and repeated preſſure, which was neceſſary, as it was not in one cavity, but diffuſed through the cells: this was continued till it became nearly of the ſize of the other teſtis. I then left it, much doubting if ſufficient had been thrown into the ſac to complete the cure. In the evening he complained of a good deal of pain in his back. In a few days the ſcrotum became moderately tumefied, and the teſtis appeared enlarged—a ſign that ſome injection had entered. The inflammation continued moderate, both in the teſtis and ſcrotum; he got up the third day, and was free from pain, but the part was very tender on being touched; the teſtis gradually ſubſided,

ſided, but a ſlough took place in the lower part of the dartos, where the injection had been, which by degrees came away; and what appeared to be part of the tunica vaginalis, followed by the ſame wound, which ſoon after contracted and healed, and he got perfectly well.—I have thought proper to mention this caſe fully, that, ſhould ſuch accident again occur, we may be aware of it, and endeavour to avoid the effect of it, by getting out as much of the injection as poſſible; if it had been ſuffered to remain, the inflammation and ſloughs would have been much more extenſive and miſchievous. With the attention I paid to avoid ſuch effects, the cure was completed with little more inconvenience than would have happened from the application of Mr. Elſe's cauſtic. But I have ſince thought I might ſtill have ſucceeded better if I had thrown in warm water to have diluted what neceſſarily

remained behind, and then have endeavoured to have again preſſed out the dregs.

Case XXXI.

November 9, 1791, a French gentleman, driven from his country at the age of ſixty-three, ſhewed me a Hydrocele of moderate ſize, which he ſaid had been collecting about two months ſince it had been laſt evacuated; being deſirous of obtaining a radical cure, I let it out and filled it with injection. He complained of little pain, which went off before it was diſcharged. I ſaw him in the evening, he ſaid his pain had continued about an hour, but that he was then perfectly eaſy. The teſtis was beginning to ſwell a little; this continued to increaſe ſo gently, that he got up the ſecond day, and was not conſcious of any thing but a ſenſe of weight in the part. This continued

continued to the ſeventh day without appearance of diminution. He was then attacked with a fit of the gout, for which he increaſed his quantity of wine; this, with an obſtinate coſtiveneſs which enſued, brought on a pain in the part for two or three days. By paying attention to his general health this went off, and the ſwelling began viſibly to diminiſh. By the end of the month he got perfectly well.

Case XXXII.

December 17, 1791, I evacuated the Hydrocele of a young man at the hoſpital: the teſtis was larger than natural; but as no material diſeaſe appeared to affect it, I filled it with injection. He ſuffered little or no pain, but walked by choice down ſtairs and up another pair to his own ward. The third day the inflammation was gentle and moderate; the ſeventh it continued ſwelled

without pain. In about a fortnight this man was entirely well.

Case XXXIII.

February 10, 1792, I aſſiſted a gentleman in injecting the Hydrocele of a middle aged man. The obſervation I made at the time was, that the cannula of the trochar was preſſed with too great violence againſt the teſtis both before the evacuation and afterwards, from which I apprehended more inflammation than uſual. This accordingly happened, but was of little conſequence, as it ſoon ſubſided by the ordinary means, and I only curſorily mention it by way of caution. The 26th I ſaw him; the teſtis was nearly of its natural ſize, and there was not the ſmalleſt appearance of a return of water.

CASE XXXIV.

MARCH 4, 1792, I performed the cure by injection on the Hydrocele of the late Col. Ironfides, which I had previoufly evacuated feveral times. There always remained a confiderable tumor or fwelling after it was emptied, owing to the great thicknefs of the fac, and a fulnefs about the chord, chiefly owing to obefity; but as the teftis appeared to be in a good ftate, I did not hefitate to ufe the injection. He complained of confiderable pain and ficknefs, which lafted about two minutes, but got better before it was evacuated. Soon after he went to bed he felt a good deal of pain in the neighbourhood of the kidneys, which he faid was like what he had felt in fits of the gravel. I faw him in the evening; he was perfectly eafy, and paffed a good night. Next morning the teftis was gently tumefied, which increafed

increased by next day. The third day he said he had felt more of the gravelly pain, and had voided some gravel, and was after that perfectly easy. The testis was swelled, but scarcely tender to the touch. This case proceeded remarkably well. The Colonel's active disposition gave him little repose, the fourth day I found him in his study amusing himself with books and the conversation of his friends. The sixth day from the operation the testis began to subside. On the ninth he went out in his carriage; and in a few days the testis was nearly subsided; and though he paid little more attention to it, but walked and took his usual exercise, and lived in his usual manner, the complaint gave him no trouble afterwards, nor has there ever been the smallest return of water.—I may now add, that the Colonel remained perfectly well of any complaint of the kind till his death, which happened in 1802.

CASE

Case XXXV.

The following Caſe differed from the generality of thoſe I have deſcribed, and had many peculiarities in its nature, progreſs, and cure.

I was deſired to perform the radical operation on the Hydrocele of a gentleman from Scotland. The tumor certainly had the appearance of a Hydrocele, but on examining it, felt heavy, and had not the feel of water alone, but as if an enlarged teſtis made part of the diſeaſe. I mentioned my ſuſpicions, and ſaid the evacuation of the water only could determine the propriety of attempting the radical cure. I let out about three ounces of ſtraw-coloured fluid from the lower part of the tumor, but found I had not evacuated the whole ſwelling. On examining I found another Hydrocele of the chord, perfectly ſeparate and independent

independent of the other, and the teſtis itſelf much indurated and enlarged. I let out about two ounces from the ſuperior Hydrocele, but on account of the diſeaſed ſtate of the teſtis, adviſed no further operation. In conſultation with a phyſician, he was put under a courſe of cicuta and mercurial frictions. The teſtis in one week became leſs, and the water did not appear to return. However, after ſeveral weeks had elapſed, the water began again to collect in ſmall quantity in the lower tumor, and the upper became as large as ever; it was now determined that he ſhould leave off the mercury and cicuta, and from an idea that it might ariſe from a ſcrophulous diſpoſition, he was adviſed to try the effect of ſea bathing. As the ſuperior tumor began to be inconvenient from the ſize, I let it out the day before he intended to go. No inflammation having followed the former puncture I expected none from this, there-

fore

fore ſaw no more of him; but was ſurpriſed to receive a letter from Brighton, informing me that he had felt ſome pain in the part during the night after the puncture, and that it was inflamed in the morning, notwithſtanding which he ſat off and travelled the whole way—when arrived the part was greatly ſwollen and painful, and, in ſhort, he was confined to his bed; the inflammation increaſed, and an abſceſs formed, which was opened. As ſoon as he was able he returned to London. I found the ſuperior Hydrocele divided through its whole extent; this ſoon granulated and healed. The collection which was again beginning below, and alſo a diſpoſition to a Hydrocele in the other teſtis, diſappeared.

Case XXXVI.

March 10, 1792, I evacuated the water from the Hydrocele of a middle aged man

at the hoſpital, which had not before been emptied. He complained of ſome pain during the evacuation, apparently more from apprehenſion than reality, as he ſaid he felt but little more when the injection was introduced. After the proper time it was diſcharged, when being relieved from his fears, he became eaſy. The next day he ſaid he had felt pain for about an hour in the afternoon, but ſince had continued eaſy. The part appeared gently tumefied; it grew larger for four or five days; by the ſeventh it was ſo much leſſened, that the man had liberty to walk about as uſual, and was diſcharged in a fortnight.

Case XXXVII.

March 13, 1792, another unfortunate French gentleman, forced to abandon his native country, ſhewed me a Hydrocele of uncommon ſize; he ſaid it had been before

let out, but had been now three years col-lecting; it was larger confiderably than his head, and gave me at firft fight the idea of a foldier's knapfack, being precifely of that fhape, yet he contrived to keep it almoft out of fight by a bandage that drew it backward. It was much too large to admit of any thing but the fimple evacuation, which accordingly I did with a large trochar, and let out more than fix full pints of water tinged with blood, which he attributed to a bruife he had received in it lately. The teftis was in a good ftate, the chord enlarged and fufficiently elongated to admit of the teftis lying at the bottom of the fwelling. Notwithftanding the immenfity of the tumor before evacuation, the fcrotum almoft im-mediately contracted comparatively to a fmall fize. I wifhed to have obferved the further progrefs of this extraordinary cafe, but he either wanted gratitude or an op-

portunity

portunity of repeating his visit, as I have not seen him since *.

* This was the largest simple Hydrocele, I mean, unaccompanied with any protrusion from the abdomen, that ever came under my observation. I have seen some of greater length, but they not having been obstructed in their growth, had taken a pyriform figure: particularly I recollect a double Hydrocele in the person of a tall young man from Westmoreland, which, from the nature of the complaint not being known, had been suffered to increase, till on both sides it reached uniformly down almost to his knees, appearing exactly of the shape, but much larger, than the scrotum of Jove when transformed to delude the fair Europa. The tunica vaginalis of both testes had suffered distention with great and equal facility, and were very little thickened; so that when the water was drawn off, the corrugating powers of the scrotum reduced the whole of the tumor to a small size. They were afterwards permitted to fill again to a proper degree of fullness, and were both radically cured.

Case XXXVIII.

The Rev. Mr. ——— had a large Hydrocele, which I had emptied in June 1791. As he was defirous now to get rid of it entirely, I was induced to ufe the injection, though it was larger than I fhould have preferred, and probably by the preffure of a fufpenfory bandage it was apparently divided into two tumors, but the communication was evident, and they both were emptied by a puncture in the lower part. I threw in the injection, and he complained of a good deal of pain for a couple of minutes, but was eafy before it was let out. He paffed a good night and got up the next day; the third day the part was tumefied, but fo eafy that he dreffed himfelf and came down into the coffee room where he lodged. The following day he chofe to take a long walk, and continued to follow his amufements as ufual,

ufual, only complaining of a little tenderneſs of the part on being handled. Notwithſtanding the little care he took of himſelf, no material interruption to the progreſs of the cure took place; in leſs than three weeks he returned into the country well.

Case XXXIX.

I hope Mr. Dunning will excuſe the liberty I take in giving the following obliging letter in his own words.

SIR,

I take the liberty to communicate the following cure of Hydrocele, becauſe it is the firſt caſe, I believe, in this neighbourhood in which the injection has been uſed. This circumſtance is not enough perhaps to juſtify me in giving you this trouble; I will not therefore add to the interruption by making

making any longer apology, but will just obſerve, that as I write from a principle of reſpect, I ſhall be extremely ſorry to offend.

A gentleman of great reſpectability, about two months ſince, conſulted me for a Hydrocele. He had noted the firſt approaches of it about a year ago, and could not refer it to any cauſe within his knowledge. As the caſe was fairly marked, and he was a temperate middle aged man, of good conſtitution, I immediately propoſed the radical cure by a ſmall cauſtic as recommended by Mr. Elſe, a practice I had hitherto adopted, and always with very complete ſucceſs. My patient now put into my hands your valuable Treatiſe, ſaid it had made a wonderful impreſſion on his mind, that he was very unwilling to ſubmit to any other method of cure than that by injection, and earneſtly requeſted me to read the Eſſay. I never read any thing with more ſatisfaction, for,

 partial

partial as I was to the caustic, all my prepossessions in its favour immediately gave way to the superior advantages of care and expedition, which so remarkably characterize your management of the complaint. Accordingly on the 10th of December ult. having drawn off by the trochar seventeen ounces of a bright citron coloured fluid, I injected about eight or ten ounces of wine and water in the proportion of two parts of the former to one of the latter. The gentleman spoke of considerable pain on the introduction, and indeed during the retention of it, which was precisely five minutes; the pain, however, soon left him. The accession of inflammation was announced the next day by a slight thickening of the parts only; indeed it was so moderate, and the whole process had been so gentle, my patient, apprehensive that a sufficient degree of excitement had not been produced, did absolutely on the second day exercise him-

ſelf about the room, with a view to increaſe the irritation, and it was from this conduct, I believe, that he complained the following day of ſome pain along the courſe of the ſpermatic proceſs, which, however, ſoon went off. About the fifth day the tumefaction had attained its height; the ſcrotum was now about the ſize of a middling man's fiſt, attended with rather a ſenſe of fulneſs than of any pain; it continued in this ſtate two or three days, and then going off gradually in the clevereſt way imaginable. At the end of a fortnight from the commencement of the cure, my patient had to congratulate himſelf on the riddance of a diſeaſe, which had long given him the greateſt anxiety. When I reflect on the eaſe and ſimplicity of the operation, which really is not more formidable than that of common blood-letting, and oppoſe it to the many painful and operoſe modes of cure hitherto, and indeed at this time too often

 employed,

employed, the cure by injection appears in a most striking point of view, must be ranked among the greatest improvements of modern surgery, and commands the gratitude of mankind. I have too long trespassed on your attention, shall therefore beg leave to subscribe myself,

Yours, &c.

RICHARD DUNNING.

Plymouth, Dec. 8, 1792.

I shall take this opportunity of transcribing another letter, from Barbadoes, which perhaps I might have suppressed, as conveying too high a compliment, had it not tended materially to prove that the injection may be safely used in climates where any other operation for the Hydrocele cannot with safety be performed. Indeed I have received assurances of its having been adopted and performed with success in most parts of the civilized world.

SIR,

SIR,

When in London in 1793-4, I became acquainted with the very elegant improvement in ſurgery, which thouſands are indebted to you for, namely, cure of Hydrocele by injection; and as I was that winter a pupil of St. Bartholomew's, I had the pleaſure to ſee you perform the operation I allude to.

Its ſimplicity and ſafety ſtrongly recommended it to me, and as ſoon as I had an opportunity, after my arrival here, in the courſe of my practice I put it into execution.

In ſeveral caſes which I have had under my care, the injection has anſwered even beyond my expectation. I have never failed to effect the cure by the firſt attempt, and I have never found cauſe to be apprehenſive of too much inflammation. In one caſe, of a man of near ſixty years of age, of a bad habit of body, and who had had Hydrocele

for fifteen years, the cure was rather tedious; but I think if any cure at all was made in fuch a cafe, it was fucceeding where no attempt of a radical cure would have been made, by a prudent furgeon, by any other mode of operation whatever. In general I have effected the cure in lefs than three weeks, and I have known the patient go out in eleven days, although, no doubt, fome fwelling and hardnefs of the tefticle would remain a little longer. This has even happened when I performed on both fides, in cafe of double Hydrocele, at once.

If you, Sir, are difpofed to confider with me that the advancement of fcience fhould not be fettered with forms and ceremonies, then no apology is neceffary for the liberty I take in communicating facts, which may tend to fupport your practice, in an improvement which will ever rank you among medical philofophers—a fet of men, in my opinion, very diftinct from medical artifts.

I need

I need not give you any farther proof of the univerſality of the practice of curing Hydrocele by injection, than by aſſuring you that no perſon will now ſubmit to any other operation here, and that I have had patients from Martinique up here to be operated on that way.

I have the honour to be,

With the greateſt reſpect,

SIR,

Yours, &c. &c. &c.

JOHN L. SMITH.

Bridge Town, Barbadoes,
May 8, 1798.

CASE XL.

' NOVEMBER 10, 1792, a perſon applied with a very large ſwelling, which appeared ſo hard and heavy, that there was every reaſon to ſuſpect that the teſtis bore the greater ſhare; however there was evidently ſome fluid, which it was agreed to evacuate. On paſſing in a trochar a larger quantity of

of fluid came away than was expected. The tunica was remarkably thick, which had made the feel of the fluid obſcure; and the teſtis was very large, but as no pain nor any bad circumſtances attended, it was determined to proceed no further, but to endeavour to ſoften and leſſen it by medicine, which was the more likely to be effected now that the preſſure of the water was removed. No means that were uſed had any apparent effect, as the water ſoon began to reaccumulate, and in ſix weeks there was as large a quantity of fluid as before. On being now more certain of the nature of it, I again let it out, and as the teſtis, though enlarged, was ſtill without pain, I was tempted to endeavour to cure the Hydrocele. It was certainly a very unfavourable caſe, and not unlikely to bring diſcredit on the injection, as I could ſcarcely have room to hope that the very thick tunica and enlarged teſtis would unite. I threw in injection; he

complained

complained of more pain than ufual; when it was evacuated he was eafier, but ftill in pain. He went to bed and was ordered an opiate, but by the miftake of the nurfe it was not given, fo that his pain, not being at all checked, continued longer than neceffary; however he was perfectly eafy in the evening, and paffed a good night. The next morning the teftis was fwelled more than ufual, probably owing to the greater length of time the pain had been fuffered to remain, and to the difeafed ftate of the parts; the inflammation and fwelling alfo remained longer than ufual, and there was reafon to fufpect that the water was again collecting: however after nine days the fwelling began to diminifh.

When it was confiderably fubfided, and no water was felt, the teftis continued fo large and hard, and the patient complained that it would be fo exceedingly inconvenient

to

to him in his business, that it was in consultation agreed to be removed. On passing in a trochar to ascertain the fact of the water being gone, about one ounce of deep straw-coloured fluid came away; as this diminished the size of the testis, which, though enlarged, did not now feel scirrhous or dangerously diseased, I was again induced to try if any means could further reduce it; accordingly I ordered what I have repeatedly known of great service in these cases; small quantities of mercurial ointment to be rubbed into the thigh: by continuing this process a sufficient length of time, the testis subsided, and became so small as to take away every reason for the removal of it, and there was not the smallest return of water; thus, both the Hydrocele and Sarcocele being cured, he took leave of me, happy and well. If in this case the tunica vaginalis had been opened for *inspection*, I conceive it would

have terminated very differently, and that the loſs of the teſticle would have been the inevitable conſequence.

As this was the moſt unfavourable caſe I ever truſted the injection in, I ſhall cloſe my account with it, though there have been many more caſes under my own care, and more have come within my knowledge, which have ſucceeded; but I do not think it neceſſary to trouble the reader with any further relation of them.

Such has been the ſucceſs which has followed this mode of practice; and though there are who ſtill prefer the painful operation of dividing the ſcrotum and laying bare the teſtis, or the tedious, loathſome cure by cauſtic, I have the pleaſure to know that many practitioners have followed the plan recommended in my treatiſe on this ſubject,

and have succeeded to their complete satisfaction. And hereafter, when contemporary prejudices are laid aside, and old habits, though strongly woven, are worn out; when all the different methods of curing the Hydrocele shall have been fairly and impartially tried; I have the gratification to think that the pains I have taken to introduce a mild and easy method will not be in vain.

Thus terminated the Appendix to the former edition, and I had taken leave of the subject, but some circumstances having led me again to take it into consideration, I conceived that I should improve considerably the utility of the foregoing work, by making an addition of a few more cases, selected from a great number, either on account of some particular circumstances attending them—or to point out the ill effects arising from

from a mode which has ſometimes been adopted of performing the operation—or to throw more light on a fact which appeared to me of conſiderable importance. The ſame reaſons ſtill exiſting, I am again induced to give them a place in the preſent edition.

THE TWO FIRST SHORT CASES ARE INTRODUCED MERELY TO SHEW THE EASE WITH WHICH THE OPERATION WAS CONDUCTED, AND THE LITTLE CONFINEMENT WHICH WAS NECESSARY TO COMPLETE THE CURE.

CASE XLI.

JUNE 1793. A gentleman lately from the Weſt Indies had a moderate ſized Hydrocele, which he wiſhed me to cure by injection. The day was fixed for the operation, when, from indiſpoſition, I was unable

able to leave my houſe. As the gentleman had made his arrangements for the purpoſe, and it would have been inconvenient to him to poſtpone the operation, I agreed to perform it at my houſe. He complained of little pain, and afterward walked to his lodging, which was not far off. He ſtaid at home all the afternoon, was generally on the bed, in expectation of pain, which however was very inconſiderable. The tumor, as uſual, became gently inflamed, and increaſed in ſize till the fifth day, when it began to ſubſide: after which he found ſo little inconvenience that he was able to go out in his carriage, and alſo to walk in his ordinary way. Though the liberty my patient took in uſing exerciſe ſo ſoon produced no material miſchief, it probably prevented the ſwelling from diminiſhing ſo quickly as it would otherwiſe have done, yet in leſs than three weeks it became ſo ſmall as to

convince

convince him that he was cured of his Hydrocele, and he continues perfectly well.

CASE XLII.

DECEMBER 30, 1793, I let out a large quantity of water from the Hydrocele of the Rev. Mr. ——, and returned ſome injection. He felt little pain either during the operation or afterwards. On the fourth day from the operation he walked between two and three miles, and continued afterwards to go out every day. Notwithſtanding which the ſwelling came on gradually, and ſo retired. The liberty he took prolonged the cure, but he got perfectly well in about three weeks.

THE TWO FOLLOWING CASES POINT OUT THE DANGER OF LETTING OUT THE WATER BY A CUTTING INSTRUMENT, AND SHEW THE UNFITNESS OF A FLAT TROCHAR TO CONVEY INJECTION FOR THE RADICAL CURE OF THE HYDROCELE.

Case XLIII.

February 1794. Col. ——— applied for cure of a Hydrocele which had been three times relieved by the palliative method, and which after the laſt time, to his ſurpriſe, was renewed in a day, the tumor having been nearly as large as when he ſhewed it to me. I ſuſpected this to have been cauſed by the infuſion of blood from ſome veſſel opened in the operation, and was leſs ſurpriſed at this accident when I was informed that the puncture had been made with a flat trochar. On paſſing in my trochar my ſuſpicions were confirmed by the diſcharge of a large

large quantity of blood mixed with ſome water; I ſaw no reaſon to doubt of the injection ſucceeding in this ſtate of the caſe, but as I had not tried it under ſuch circumſtances, I thought it prudent to defer the radical cure till the bag ſhould be again filled, particularly as my patient made no objection to the delay. From this time he was too much engaged to notice his complaint, till June following, when it became ſo conſiderable as to arreſt his attention. On the 17th of that month, his activity making him unwilling to loſe a day, I made uſe of the injection at night. He felt little pain in the operation, none after, ſlept as uſual, and in the morning was refreſhed and well, a little tumefaction only appearing on the part. In the afternoon he got up and went into another room, the next day I found him perfectly eaſy and tranſacting buſineſs, in the evening he ſent for me in haſte, and informed me that the com-

mander in chief had granted him this time to undergo the operation as the moſt leiſure, and when his preſence would be leaſt liable to be required, but that, contrary to expectation, his corps was ſuddenly called out to active ſervice. He ſeemed much diſtreſſed at being abſent on the occaſion, ſaid he found himſelf eaſy, and was determined immediately to get into a chaiſe and join his regiment. Repreſenting ſtrongly to him the danger he would incur by ſuch a ſtep, I prevailed on him not to go. The agitation of his mind on this occaſion raiſed a little fever, which however was ſoon calmed. He paſſed a tolerable night, the next morning was cool and temperate, and the part ſlightly ſwelled. After this time, though my patient's active diſpoſition made me apprehenſive of too great inflammation, the ſymptoms proceeded much to my ſatisfaction, and at the end of a fortnight he left London. I

ſaw

faw him the fucceeding autumn, in every refpect perfectly well.

Some time fince I had occafion to fee another Hydrocele which had been tapped by a lancet, by which a blood veffel was opened in its paffage, and the tunica vaginalis in a few hours became diftended with blood to fuch a degree as to caufe great pain and inflammation. The blood was fuffered to remain feveral months, till it became partly confolidated and partly organifed, and produced fuch hardnefs and apparent difeafe as to make it neceffary to extirpate the teftis. Several other inftances of nearly a fimilar nature I could enumerate arifing from the ufe of a lancet or a flat trochar.

Case XLIV.

This cafe, befides fhewing the fault of the flat trochar, is well worth notice on account

of the extraordinary ſize of the diſeaſe, and other circumſtances, which will be told in as conciſe a manner as poſſible.—In November, 1795, I ſaw, in conſultation with the late Mr. Ruſh, a gentleman who came from Barbadoes expreſsly for the radical cure of a Hydrocele of long ſtanding. The ſtate of his health was bad; he ſaid he had been much troubled with bilious complaints, which his countenance teſtified, being yellow as ſaffron. The tumor was very large and miſhapen, evidently ſhewing that though it contained much fluid, the teſtis made a very conſiderable part of it. He had alſo a Hydrocele on the other ſide, too ſmall at that time to be an object of cure. Though the gentleman anxiouſly wiſhed to have the radical cure performed, that he might return to his family, I ſtrongly recommended the palliative cure to take place firſt, on account of the ſize of the tumor, and alſo that I might have an opportunity

of

of examining the ſtate of the parts: accordingly it was performed, and a very large quantity of fluid was let out highly tinged with bile. The maſs which remained was a teſtis greatly enlarged, with the coats prodigiouſly thickened, but in no part giving the idea of ſcirrhous, or active miſchief of any kind. It was therefore agreed to endeavour to cure the Hydrocele by injection, when it ſhould be again large enough to admit the trochar.

I ſaw him again in about a month, when it appeared that the tumor had filled ſo rapidly, and grown already to ſuch a ſize, that I recommended the radical cure without further loſs of time. Accordingly I attended to aſſiſt at the operation, which was performed with propriety; but the trochar which was uſed being flat, and conſequently cutting as it went in, and the cutting part perhaps rather wider than the cannula, the opening which it made in the tunica vagi-

nalis did not bind ſufficiently on the cannula; ſo that when the operator had thrown in ſome injection, I obſerved that part of it returned; and though he threw in the contents of ſeveral ſyringes, made with the vegetable bottle, he was never able to diſtend the bag. The upper part conſequently was not affected by the injection, the patient complained of a good deal of pain, which continued for a ſhort time after he was put to bed. Some inflammation followed, and there was hope that this might be ſufficient to produce a cure; but *in a fortnight* a fluctuation became evident in the upper part, though an adheſion or conſolidation ſeemed to have taken place on the teſtis. It was therefore determined to make a further trial ſo ſoon as ſufficient fluid ſhould be collected to allow the inſtrument to be introduced with ſafety.

This interval was thought favourable for

performing an operation on his negro servant, that he might be well time enough to attend his maſter in his next operation. This man had a Hydrocele of uncommon magnitude, and in a very relaxed ſtate, the teſtis alſo was nearly as large as his maſter's. On the whole it was as diſcouraging a caſe, and as unlikely to be cured by injection, as any I had ever attempted. However it was agreed to give him the chance. January 1ſt, 1796, a great quantity of fluid was let out, and a large relaxed bag was left, with a teſtis equal in ſize to the largeſt baking pear, and ſomething of that ſhape. The injection was properly thrown in by means of a round cannula, and retained: he ſuffered very little pain, went to bed, and was treated as uſual. In ten days from the operation he was able to go about his buſineſs and wait on his maſter. The Hydrocele was perfectly cured, but the teſtis

remained

remained of a large ſize, and was ſuſpended in a bag.

The man being well, the maſter determined to undergo the ſecond operation; accordingly, January 14, a proper round trochar was uſed. A conſiderable quantity of fluid was evacuated from the tumor, which ſeemed principally to have its ſeat in the chord, though the teſtis was of a great ſize, and the tumor conſequently remained very conſiderable after the water was drawn off. On throwing in the injection it was remarkable that the patient was not ſenſible of the ſmalleſt pain, which being ſo contrary to what he had felt in the former operation, agreeably ſurpriſed him. This circumſtance I readily accounted for, and it is well worthy of being remarked, as it tends to prove what I have always ſuſpected, but have never had an opportunity of aſcertaining, that the cure by injection is cauſed by

adheſion.

adhesion*. In the present case it seemed beyond a doubt that by the adhesion of the tunica vaginalis to the testis in the first operation, the injection in the second was shut out and prevented from touching the testis, which is the only part sensible to the stimulus of the injection, so that by the adhesion this, which originally was a Hydrocele of the tunica vaginalis testis, appeared to be converted into a Hydrocele of the chord, in which the injection never causes any pain †.

When the injection had remained the usual time it was withdrawn, and the other

* I have since had opportunities of examining several testes on which the cure by injection has been perfomed, and have found a complete adhesion of the tunica vaginalis to the tunica albuginea. There is a specimen of it in the Museum of St. Bart. Hosp.

† In general the injection into the Hydrocele of the chord produces little or no pain; but from subsequent experience I find that in some cases a good deal of pain has followed the operation, but it has been of short duration, and has not returned.

testis

teſtis examined. It appeared that the Hydrocele was now grown large enough to allow of the introduction of a very ſmall trochar, which was accordingly done, and about two ounces of fluid were diſcharged. The teſtis was rather larger than natural, but in a ſound ſtate. On throwing in ſome injection, he complained of more pain than is uſually expreſſed; perhaps to his ſenſation it might be ſomewhat increaſed by contraſting it with the eaſe which attended the operation on the other ſide. The tumors on both ſides gradually increaſed to a large ſize; in about a fortnight from the operation they began to ſubſide, and gradually diminiſhed, leaving not the ſmalleſt doubt of the Hydrocele being perfectly cured on both ſides. I have had ſeveral opportunities of ſeeing both theſe patients ſince; in each of them the ſize of the teſtis continues to leſſen, and they are preparing to recroſs the Atlantic. On conſidering all the circum-

ſtances

ftances of the preceding cafes, I fhall leave it to the judgment of other practitioners to determine whether any operation but a mild injection could with fafety or impunity have been practifed.

TWO CASES WILL BE NOW RELATED TO PROVE THE LITTLE DISTURBANCE OR MISCHIEF WHICH ENSUES FROM THE FLUID OF A HYDROCELE BEING LET OUT FROM THE TUNICA VAGINALIS TESTIS, AND SUFFERED TO REMAIN DIFFUSED THROUGH THE CELLULAR MEMBRANE OF THE SCROTUM.

Case XLV.

July 9th, 1793, I examined the Hydrocele of a gentleman in the city, which had twice been fuffered to grow fo large as to have been burft by fome accidental blow, fo that the fluid found its way into the cellular

lular membrane, and remained there, without producing any confiderable inconvenience, until it was abforbed. To prevent a fimilar accident in future, I let out about four ounces of fluid, and intended to throw in the fame quantity of injection, but found that the gentleman who affifted me had fuffered the fyringe to be half filled with air. The pain which he felt was very flight, and the inflammation which followed equally moderate. On the day after the operation he went down ftairs, and on examining the part on the 9th day the tumor did not diminifh, as is commonly the cafe. Whether this was owing to its having burft before, or to air having been introduced, it was difficult to fay; but it had for a longer time than ufual an appearance as if more water was forming. The fwelling however at laft gradually fubfided; and in about five weeks he was cured. The gentleman whofe cafe is here related, I have by chance had an op-

portunity

portunity of feeing this day, April 6th, 1796, and he affures me that he continues perfectly well.

Case XLVI.

In the autumn 1793, a trochar was paffed into a Hydrocele. After the firft gufh no water followed, but the fcrotum became greatly tumefied; on this occafion I was called in, and found that the cannula had flipped out of the tunic, and that the fcrotum was filled with the effufed fluid. The cannula was withdrawn, and we endeavoured to prefs out fome of the fluid by the orifice; but as this method was more likely to do harm than good by bruifing the parts, I advifed nothing more to be done, only recommending a difcutient application. The water gave no trouble, and was abforbed. When the Hydrocele was again fufficiently full the operation of injection was performed,

formed, and the patient got perfectly well, notwithstanding he was attacked a few days after the operation by a violent fit of the gout, to which he had been often subject.

THE NEXT CASE IS NOTICED ON ACCOUNT OF THE TARDINESS WITH WHICH THE INFLAMMATION CAME ON, OWING TO SOME PARTICULAR CIRCUMSTANCES.

CASE XLVII.

A gentleman about *seventy* years of age, who had passed many years in the East Indies, shewed me a large Hydrocele, which I evacuated several times at different intervals. The repetition becoming irksome and disagreeable to him, he asked me how long I thought he would be obliged to submit to this palliative method. I informed him that probably it would be necessary to

have

have recourse to it during the remainder of life, and related a case in point of a gentleman who applied to Mr. Pott for the radical cure of a Hydrocele, about the year 1760; being then *sixty* years of age, Mr. Pott thought him too old to undergo so severe an operation as the incision, which at that time was usually practised; and advised him not to submit to it, but to be content with the palliative cure. The gentleman found it necessary to visit Mr. Pott for this purpose four times a year during the remainder of Mr. Pott's life. He has since done me the honour to call on me at about the same intervals: though now in his ninety-fourth year, he is able to walk with activity, and the faculties of his mind are unimpaired and vigorous. His last visit to me was in 1795; soon after which he left this world in the ninety-fifth year of his age. I am glad of an opportunity of producing this instance, as it may be a pleasing satisfaction to many,

 who

who think their life and health concerned in this complaint, to ſhew that it does not affect either the one or the other, and that the conſtitution receives no injury, provided the accumulation of the fluid be not too long neglected.

When my patient heard the account, and was ſenſible of the great probability of the continuance of the complaint, he deſired to have the radical operation performed if I thought he was not too old. I informed him that the operation which I had to propoſe might be performed without danger at any period of life; on which he agreed to ſubmit to it. January 3d, 1794, the injection was made uſe of, which cauſed very little pain; and he was ſo eaſy afterwards that I did not find it neceſſary to give him an anodyne. He paſſed a good night, and the next day, as there was neither pain nor ſwelling, left his room. The following day there was ſo little appearance of inflam-

mation,

mation, that, fearing there would not be ſufficient, I adviſed him to live in his uſual manner, and drink ſome wine. Several days however paſſed without any appearance of inflammation. I was conſidering how to account for this, when I obſerved that he generally ſat with the door partly open, that there was a current of cold air, and that he complained of his legs and feet being cold. Whether this circumſtance, or his advanced age, prevented the acceſs of inflammation, I could not ſay, but thought it right to recommend him to keep himſelf warmer. At the diſtance of ten days from the operation, ſome degree of inflammation aroſe, and the whole tumor gently ſwelled, exactly as is uſual immediately after the operation. He felt no pain, but the tumor, as it had been remarkably lingering and tedious in its acceſs, was equally ſlow in its progreſs and retreat; however, it at length ſubſided, and he got perfectly well by the

16th of February, and has continued so ever since. He is, now, January 5, 1805, alive and well, without any return of his complaint.*

* I lately, in consultation, saw a gentleman whose Hydrocele had been injected in the method here recommended, but though upwards of a fortnight had passed since the operation, the testis remained so large and hard that the patient, who was of a nervous timid disposition, and had been reading some more favourable cases in my treatise, was alarmed and apprehensive that there was something materially wrong in his case, and that the size of it would never diminish. I assured him I had seen some remain a considerable time before they began to lessen, and did not doubt of his getting well, though it might take some more time. The surgeon who attended him had prepared a blister to put on the scrotum, to accelerate the diminution. To this I took the liberty of objecting, as likely to produce a very troublesome excoriation on a part which is particularly and painfully affected by blistering, and as it appeared to me in this case without any necessity. I recommended some leeches, fomentations, and poultices to be applied, and saw him about a week after, when the whole tumor was so lessened and softened as to make the patient perfectly easy with regard to a favourable termination of his complaint.

IN THE NEXT CASE IT WILL APPEAR THAT THE INJECTION SUCCEEDED AFTER OTHER METHODS OF CURE HAD BEEN ATTEMPTED.

CASE XLVIII.

FEBRUARY 25, 1794, I was defired by his benevolent mafter to fee the Hydrocele of an Indian boy, which was very large, and on which the operations of the cauftic and of the incifion had been feparately tried, in this country, and had failed. On the 26th, I let out a confiderable quantity of water, but not in proportion to the fize of the tumor, which was in a great degree kept up by a very large tefticle, and great thicknefs of the fcrotum and tunica vaginalis. As it appeared to me that thefe circumftances probably were more owing to the repeated inflammations which the parts had undergone, than to difeafe, I was not deterred from rifquing the credit of the injection.—He complained of a little pain during the operation, but felt

none after it. On the third day from the operation, the tumor was increafed to a confiderable fize, which was treated in the ufual way, and the Hydrocele did not return. The teftis however continued very large; but the preffure of the water being removed, and as I had prognofticated, there being no inherent difeafe in the gland, by the affiftance of proper difcutients he became perfectly well, to the entire fatisfaction of his mafter, William, brother to the great orator and ftatefman, Edmund Burke.

THE SUCCEEDING ACCOUNT IS ATTENDED WITH SOME PECULIARITIES, AND MAY BE THE MEANS OF PUTTING PERSONS ON THEIR GUARD WHO MAY BE OBLIGED TO OPERATE UNDER SIMILAR CIRCUMSTANCES.

Case XLIX.

April 14, 1794, Mr. —— had a Hydrocele on each fide, which I had evacuated

ſeveral times. On the right was a hernia, which in the infancy of both ſwellings he had been able to keep up with a truſs, but as the protruſion became larger; and the Hydrocele alſo increaſed in ſize, it was by degrees difficult, and latterly impracticable, to apply a truſs, ſo as to keep the protruded inteſtine within the abdomen. On this account, though otherwiſe not inclined, he wiſhed to undergo the radical cure of the Hydrocele. I was aware that I might meet with ſome embarraſſing circumſtances in this complicated caſe, but the neceſſity outweighed the difficulty, and I propoſed to cure it by injection. In order to do this, I returned the protruded parts within the abdomen, and directed an aſſiſtant to ſupport, and keep them from coming out again. Having ſucceſsfully evacuated the tunic, I threw in ſome injection, which gave him ſome pain; on increaſing the quantity he ſtarted involuntarily, and by the exertion his

rupture was forced down, which preſſed on the tunica vaginalis, and drove out the cannula. By this accident a ſtop was put to the operation, and ſome of the injection paſſed into the cellular membrane of the ſcrotum. This in a great meaſure was preſſed out through the opening made by the trochar; ſufficient however remained, to cauſe a dull, painleſs tumor, which was not very inconvenient, and did not prevent the gentleman from going out as uſual. At the end of five weeks there was an evident fluctuation, ſome matter was diſcharged, attended with a ſlough of part of the tunica vaginalis, ſoon after which the wound healed, and the Hydrocele was cured. Notwithſtanding the accident, I am confident that this caſe was attended with leſs pain and inconvenience, than would have been cauſed either by the cauſtic, ſeton, or inciſion. I may add that this day, April 17th, 1796, I have ſeen this gentleman, and have

had

had the ſatisfaction of knowing that he continues perfectly well.

IN THE FOLLOWING CASE THE INJECTION APPEARS NOT TO HAVE BEEN COMPLETELY SUCCESSFUL.

Case L.

October 1793, I evacuated the Hydrocele of Mr. ——, let out about half a pint of fluid and returned ſome injection; he complained of a little pain, and ſome inflammation followed, which gradually and favourably ſubſided. In about the uſual period he got apparently well, but ſome time afterwards a ſmall tumor appeared in the lower part of the ſcrotum. On examination I plainly perceived that an adheſion had taken place all round the teſtis, but in the lower part a ſmall diſtinct tumor was formed, filled with fluid.

It

It will appear from this case that the operation of injection is not infallible. At the same time, I can with confidence add, that it is the only instance, selected from nearly one hundred, which I have treated in this way, in which it has not completely succeeded, and I have no doubt but that if I had had an opportunity of repeating the injection, that the cure would have been accomplished.*

* The account above recited remains as it appeared in the former edition; eighteen years are now elapsed since I began to use injection, during which time I have performed the operation on more than 400 Hydroceles, and do not recollect more than two instances, besides the one just mentioned, in which it failed. One of these was in a person belonging to the family of Lord Pomfret, on whom I used spirits of wine lowered with water. Being apprehensive of using it too strong, I did not make it sufficiently so, to produce the necessary inflammation, and the complaint consequently returned.

The other was in the case of a right honourable gentleman, whose Hydrocele I had emptied in the palliative way several times. In August, 1802, having some leisure, he wished to be radically cured. The weather being extremely hot, I begged him to permit me to let it out simply as usual; and so determined was I against the operation

operation, that, though I went by appointment for the express purpose of doing it, I did not bring my own wine, as from precaution I usually do. However, he persisted so strongly to press me, that I was obliged to comply. His servant brought wine from the sideboard, which I afterwards found had been opened several days; and fearful of producing too much inflammation during such hot weather, I diluted it much more than usual, adding two parts water to one part wine. The consequence of all this abundant caution was, that not sufficient inflammation was produced, and the water returned. In October following it had risen to a good size, and was again submitted to the operation. I took care this time to carry my own wine, and diluted it no more than usual: nevertheless little pain followed; indeed so little that we were apprehensive of a second failure; to guard against which the patient would submit to no precaution, but went up and down stairs the next day, and in a few days went out and took exercise as usual, except on horseback, which I resolutely forbid. All this while a gentle swelling was perceivable coming on gradually and increasing to about the seventh day, after which it as gradually retired. Perhaps the little sensation produced in the last operation might arise from the sensibility of the tunics being in some degree blunted by the former injection. However, from whatever cause it proceeded, I do not know that I have seen a case in which the injection had less immediate or apparent effect, nor one in which it ended more happily. At the end of a fortnight I ventured to pronounce the complaint completely cured, and so it continues, January 20, 1805.

THE NEXT CASE POINTS OUT THE DANGER OF LETTING THE FLUID REMAIN TOO LONG IN THE SAC OF A HYDROCELE, AND MAY NOT BE AN UNINSTRUCTIVE INSTANCE TO BOTH PATIENTS AND SURGEONS.

Case LI.

1794. A gentleman, aged about 60, ſhewed me a very large Hydrocele, which he ſaid had been twice evacuated. The firſt time by the late Mr. Pyle, the ſecond time, at the diſtance of ſome years, by the late Mr. Watſon; when a thick dark coloured fluid came away. Four years had elapſed ſince the laſt operation. The tumor was now of the full ſize of the egg of an oſtrich, every part of it felt ſo hard and heavy, and had ſo little the appearance of a Hydrocele, that I ſuſpected, though the ſac might contain a conſiderable quan-

tity

tity of fluid, that the teſtis would be found in a very diſeaſed ſtate. After having fully explained my ideas of the caſe, I introduced a trochar, which paſſed in with difficulty, as if going through buff leather, and nearly a pint of fluid, thick, and coloured like chocolate, was diſcharged; after this evacuation a large tumor was left perfectly inſenſible; on withdrawing the cannula, it was ſo tightly claſped by the tunica vaginalis that conſiderable force was neceſſary to diſengage it. I informed the patient that I was apprehenſive the teſtis had received much injury, from the fluid being ſuffered to remain in too long: he ſaid he had followed the advice of both his ſurgeons, not to have it let out till it became troubleſome, and as it had given no pain, he had not attended to it.

I cannot paſs by this opportunity without mentioning as my decided opinion, that it is

extremely

extremely prejudicial to let the fluid remain long in a Hydrocele, as it muſt either diſtend the ſac to an immoderate ſize, or if the tunica vaginalis be ſufficiently ſtrong to reſiſt the preſſure, it will become extremely thickened, and the counter preſſure will equally thicken the tunica albuginea, and the whole body of the teſtis will become enlarged.

No inflammation or ill conſequence followed the puncture, and the gentleman went into the country, where he caught cold, attended with a conſiderable degree of fever, in conſequence of which an inflammation took place in the ſcrotum, and was followed by a mortification, by which the tunica vaginalis partially ſloughed. The Hydrocele was cured; but a large diſcharge of matter continued to come away from the body of the teſtis, and the whole tumor remained very large.

On conſultation with Mr. Howard, of

Southampton

Southampton Street, it was agreed that the extirpation of the teſtis was the only means left to reſtore the patient to health, or indeed to ſave his life. When the parts had regained a quiet ſtate, the operation was performed. In the body of the teſtis a quantity of matter appeared to have been collected, and on the ſurface of the tunica vaginalis, which was of an immenſe thickneſs, ſeveral oſſifications were formed. The gentleman got perfectly well; and I ſhould not have given this long hiſtory, but to ſhew the effects which I conceive to have been produced by ſuffering the fluid to remain too long in the ſac, for as far as we could judge from previous circumſtances, and actual appearances, there was no reaſon to think that there was original diſeaſe in the teſtis, but that this was brought on by preſſure, and had the tumor in its early ſtage been treated properly as an Hydrocele, it was highly

probable

probable that so severe an operation as the extirpation of the organ might have been prevented*.

* The late Mr. ———, between fifty and sixty years of age, laboured under a disease of a similar nature, in which the testis had grown to an enormous bulk, being more than *twice the size* of the case just related. This I could never trace from any other cause than a long neglected Hydrocele. The removal of it became absolutely necessary. Though afflicted with many other complaints, principally arising from corpulency, and that from want of exercise, which he had been unable to take, he was much relieved by the operation, and passed the short remainder of his life with comparative ease and comfort.

THE

THE REMAINING CASES PROVE THE INNOCUOUS YET POWERFUL EFFECT OF THE INJECTION, WHICH IS RECOMMENDED, AND THAT IT MAY MOST ADVANTAGEOUSLY AND SAFELY BE EMPLOYED WHERE IT WOULD BE IN THE HIGHEST DEGREE HAZARDOUS TO PERFORM THE OPERATION OF INCISION, OR INDEED ANY OF THE OTHER ORDINARY MEANS OF CURE.

Case LII.

November 1793. In my abſence Mr. Harvy injected the Hydrocele of a patient in the hoſpital, who had alſo conſiderable diſeaſe of the teſtis. The gland partook of the inflammation, and the whole appeared in a few days as large as before the water was evacuated; in a fortnight it was evident that no fluid was collected, but that the whole tumor, large as it was, conſiſted of the teſtis only; this remained ſtationary many weeks, but by perſevering in rubbing mercury into the thigh, and keeping him in

a horizontal poſition, it gradually leſſened till it became nearly of its natural ſize; and the man went out cured of both diſeaſes.

If this had been opened by inciſion, and the teſtis *inſpected*, I believe few practitioners would have thought it right to attempt the cure of the Hydrocele only, and have left the teſtis in ſo enlarged and indiſpoſed a ſtate.

Case LIII.

June 21, 1794, I let out a large quantity of fluid from the Hydrocele of a young man at the hoſpital. I found the teſtis very large, and the tunic remarkably looſe and flaccid, ſo much ſo, that I deſpaired of its being capable of contracting and adhering to the teſtis, and of perfecting a cure. However, as there was neither pain nor partial hardneſs in the teſtis, and as I had ſucceeded in ſome caſes nearly as bad, I

determined to uſe the injection. No pain was felt either at the operation or afterwards, and very little inflammation enſued. At the end of a fortnight the diſeaſe appeared to be returning; after waiting a little time we did not perceive any accumulation of water to take place: but the teſtis continued ſo large that the patient complaining that it would abſolutely prevent him from getting his bread, deſired to part with it, and the operation was reſolved on; but as the mercurial frictions began to take effect, and the tumor ſeemed to leſſen, the extirpation was poſtponed; after which it gradually leſſened, and actually became of a moderate ſize; and being in a perfectly eaſy and indolent ſtate, the patient left the hoſpital.

CASE LIV.

JULY 6, 1794, the porter of Mr. Martindale, of Bond Street, applied to me with

two Hydroceles of such magnitude, and so unseemly an appearance, that he said no person would hire him. Both were emptied, and the testes were found prodigiously enlarged. He suffered them to fill again to the same size, when I proposed to him to go into the hospital, to obtain a radical cure. It being extremely hot weather, it was thought advisable not to operate on both at once; the left side therefore was simply evacuated, the other, though so large as to be very unfavourable for any operation, was filled with injection, which was made particularly strong. This man felt little pain either at or after the operation, the part became inflamed, and swelled to nearly its original size, and gradually subsided without the occurrence of any particular circumstance, except that the progress of the cure was slow, and of longer duration than usual, which from the size of the tumor was to be expected. The uninjected side,

ſide, not at all affected by the neighbouring inflammation, through the whole proceſs was lax, and ſoft, and ſo continued till it gradually filled with fluid.

October 1ſt, it was nearly as large as ever, when I let out a pint of fluid, and afterwards uſed a ſtrong injection. He ſcarcely felt any pain, the inflammation came on gradually, and proceeded in every reſpect like the other. He remained in the hoſpital ſome time after the Hydroceles were well, to give time and opportunity for the ſize of the teſtes, which were ſtill of great bulk; to be leſſened: with the aſſiſtance of ung. hydrarg. they were in no great length of time much diminiſhed; when they became of moderate ſize the man left the hoſpital, happy in having got rid of two grievous burthens.

CASE LV.

The following is the laſt caſe I ſhall notice, as no inſtance can more ſtrongly prove the facts which I have endeavoured to eſtabliſh.

JULY 16, 1795, a gentleman applied to me for the radical cure of a Hydrocele. I plainly perceived a large quantity of fluid in the tunica vaginalis, but alſo ſuſpected much diſeaſe of the teſtis. His ſtate of health was at that time extremely bad, he was gouty, rheumatic, and debilitated to a great degree; on theſe accounts, and to have an opportunity of examining the ſtate of the teſtis, I recommended the fluid to be ſimply let out; accordingly a pretty large quantity of fluid was evacuated, which however appeared to have conſtituted not more than one third of the tumor; the remainder conſiſted of a teſtis much enlarged. So ſoon

as his general health by the aſſiſtance of Dr. Turton was reſtored, he rubbed ſmall quantities of mercurial ointment into the thigh; and such applications were made to the part as were moſt capable of aſſiſting in its diminution. In about ſix weeks the ſac became again ſo full as to require to be evacuated. As we were now perfectly acquainted with the diſeaſed ſtate of the parts, nothing but the palliative cure was thought of. On tapping it, however, we were pleaſed to find that the water bore a much greater proportion to the ſize of the tumor, than at the firſt evacuation, making now at leaſt half the bulk of the whole. The teſtis alſo was conſiderably ſmaller. As theſe appearances were ſo favourable, and his health grew better, he purſued the ſame plan. The latter end of Auguſt he went to the ſea-ſide, and uſed the warm ſea bath; ſtill continuing his gentle mercurial frictions. In October he returned to London in good

 health,

health, and determined to get rid of his Hydrocele by the radical operation. Before I would agree to this, I desired a consultation might be held, and in the presence of two other surgeons I let out the fluid, when it was unanimously agreed that the testis was not in a state to bear the irritation of any method of curing the Hydrocele, but was not so diseased as to require removal.

The water soon beginning to collect again, he grew tired of the prospect of repetitions of the palliative cure, more particularly as the dread of having it performed by a stranger prevented him from going into the north, where he had business of consequence. Among many arguments to induce me to perform the radical cure, he observed that the testis always appeared to him to diminish most during the time that the fluid remained in the smallest quantity; that is, immediately after the evacuation. On attentive examination I thought his observa-

tions

-ions well founded, and conceived hopes that the total abſence of the water might produce conſiderable effect, and perhaps cure the complaint. As the water continued to collect, he became more anxious to have the Hydrocele cured, and to take his chance about the teſtis, which was certainly become conſiderably leſs, and in a quiet ſtate. On a ſecond conſultation it was agreed that the method by injection might be tried, but that no other operation could with any degree of ſafety or propriety be attempted, as there was not a queſtion but that the loſs of the teſtis would be the conſequence. At the beginning of December I let out a large quantity of fluid, and found the teſtis ſomewhat leſs, and in a quiet ſtate; I threw in ſome injection more diluted than uſual. The pain which followed was very moderate and of ſhort duration; the next day much inflammation had taken place, the tumor ſwelled to a conſiderable ſize, but was perfectly

fectly eafy. It continued increafing to the fifth day, when it began gradually to fubfide. At the end of a fortnight there was no appearance of water. The teftis was fmaller than at the time of the operation, and appeared to have received no injury from the inflammation which had been produced. It was however ftill much too large, but from that time gradually leffened to a moderate fize. At the end of December the Hydrocele was perfectly cured; the teftis fo free from pain, and attended with fo little inconvenience, that the gentleman went out of town, and has fince undertaken a journey to a great diftance from London.

This gentleman called on me in September, 1804, and affured me that he continues perfectly well, is married, and the father of feveral children.

To the cafes which have been related I could now, as before obferved, add more than four hundred inftances of complete fuccefs; but it appears to me fuperfluous and unneceffary to advance any thing further on the fubject.

THERE only remains to take notice of the *Hydrocele of the Spermatic Chord*, of which a defcription has been given in page 5 preceding.

In the former edition two inftances only of this fpecies of Hydrocele, blended with common cafes, were mentioned, no others having at that time been fubmitted to the cure by injection. It is not a very common complaint; however, as I have fince frequently met with it, I fhall now place it under a diftinct or feparate head.

HYDROCELE

OF THE

SPERMATIC CHORD.

Case I.

A person from Feversham, about fifty-four years of age, applied to me. On examination there appeared a tumor in the spermatic chord, about the size of a moderate orange, hard and incompressible; he imagined it proceeded from a blow, and had perceived it a considerable time growing larger, without causing much pain; but it was now becoming more and more uneasy, from the distention of the increasing fluid.

Below this fulness the testis with its epididymis was perfectly distinct, neither enlarged, nor in any manner altered, and the termination of the tumor above was perfectly

fectly free from any connection with the contents of the abdomen; the chord between it and the ring being to be felt in its natural ſtate, though ſomewhat larger than uſual. I made no doubt of the diſeaſe being a Hydrocele of the ſpermatic chord.

The patient preſſed me to make a permanent cure of his complaint, as he ſaid his buſineſs was on board a ſhip, and the ſwelling was a great inconvenience to him.

As this was the firſt of this ſpecies of Hydrocele that I had ſeen ſince I began to uſe injection, I heſitated about the mode of treatment, and endeavoured to recollect what other practitioners had recommended. On looking into various authors, I found that ſome had propoſed to cure it by application of cauſtic. This at once appeared to me highly dangerous, from the poſſibility of the cauſtic penetrating too deep and injuring the ſpermatic veſſels.

A diviſion through the whole length of the

the tumor is the only method which Mr. Pott has propoſed; but he obſerves, that though the operation may in general be performed with great eaſe and perfect ſafety, he has ſeen it prove troubleſome, hazardous, and fatal. Of ſuch conſequence are wounds in membranous parts in ſome particular habits. Mr. Pott, with his uſual candour, has related two caſes of the encyſted Hydrocele of the chord on which he performed the operation of inciſion; the firſt was laid open through its whole length, and a perfect cure was obtained: the other was in the ſame manner divided, but did not end ſo fortunately; the patient, though at the time of the operation apparently healthy, proved of an ill conditioned habit of body; the wound neither became tumid nor inflamed, his pulſe hard and frequent, accompanied with thirſt, reſtleſſneſs, and a languor in his countenance. On the fourth day the inciſion ſtill remained cold, lax, and flabby;

and

and was ſo far from ſhewing any tendency to ſuppurate, that, on the contrary, the edges began to look livid, and, notwithſtanding every medical aſſiſtance, he died on the ſeventh day.

This was certainly a moſt diſcouraging account, and added much to the repugnance I felt at the diviſion of ſuch membranous parts; I therefore determined to try the effect of injection.

As the extreme ſenſibility of the tunics of the teſticle had always appeared to me the cauſe why ſo mild an injection as I uſually employ in the common Hydrocele, is found to be ſufficiently ſtimulating to produce the proper effect, I had much doubt whether in this caſe, in which it would not meet with ſuch irritable ſurfaces, it would be powerful enough to raiſe the neceſſary inflammation: however, as the worſt that could have happened would have been diſappointment, I determined to try it of the uſual ſtrength.

March 22, 1791, the trochar was paſſed through a very thick cyſt, and let out a quantity of ſtraw-coloured fluid, ſimilar to what is uſually found in the common Hydrocele; on the cavity being filled with injection no pain nor ſenſation was excited, on which account it was ſuffered to remain in near half an hour, and was then diſcharged. The injection having been ſo perfectly innocent, I expected the effect from it to be proportionally ſmall; but was pleaſed to find, next day, ſome inflammation on the part, and the patient ſaid he had felt ſome pain. From that time it proceeded in every reſpect like a Hydrocele of the tunica vaginalis, it gently ſwelled, and had the appearance of a freſh collection of fluid; in about a week it began to ſubſide, and gradually decreaſed, till, in leſs than three weeks, it came to the ſize of a ſmall walnut, and felt to be only the remaining ſolid thickneſs of the cyſt; after which it ſeemed ſtationary, and no alteration

appearing

appearing likely to take place, about the end of the month from the operation he went into the country.

I had an opportunity of feeing him the 10th of May following, and the part which had been the feat of the difeafe was become fo nearly of the fize of the reft of the chord, that the difference was fcarcely perceptible. This is an additional inftance of membranous parts growing thick from preffure, and again becoming thin, and of their natural texture, from the abfence of it.

Case II.

July 1, 1792, a gentleman applied to me with a Hydrocele which had once before been emptied. It was pretty large, but what made it remarkable was, that the teftis could be felt diftinctly under the tumor, fo that the water appeared to be collected in the chord, but yet the fwelling

could not be distinctly separated from the upper part of the testis. It was sufficiently evident that the cavity of the tunica vaginalis testis was not the seat of the complaint. He wished the injection to be used. I thought proper to inform him that this was not a common case; but as I had succeeded in one where the water was collected in the chord, I had hopes of being equally successful in the present; and as the coats of the testis were not affected, I imagined the sensation which the injection would produce would be in a very small degree. I let out about five ounces of water; when the injection was introduced, he complained, as I expected, of very little pain; he went to bed to meet any pain which might arise, but he continued easy all the afternoon; the next morning I found him up and dressed. The part was attended with some swelling, which continued increasing to the sixth day, when he complained of some uneasiness, and was glad

glad to keep his bed for a few days, which, with the aſſiſtance of a ſaturnine application, ſoon reduced it. After which it gradually ſubſided as a common Hydrocele, and in leſs than three weeks he went out of town. The chord rather larger than the other, but without the leaſt appearance of a freſh collection of water.

Case III.

March, 1794, I ſaw a gentleman, in conſultation, who had a Hydrocele on each ſide. In both the water was collected in the chord, yet ſeemed to be in contact with the upper part of the teſtis, the body of which was plainly perceptible from not being ſurrounded with fluid, which plainly proved them both to be Hydroceles of the ſpermatic chord. We agreed, with the approbation of the patient, ſimply to evacuate one, and to uſe the injection in the other. The left

tumor was accordingly punctured, and about two ounces of clear ſtraw coloured fluid was evacuated; the other was alſo emptied and filled with injection. He felt ſome little pain and ſickneſs, which ſoon went off; I ſaw him next morning, when he ſaid he had not had occaſion to take the opiate, which was preſcribed if neceſſary, and had paſſed a good night. The part continued ſwelling about four days; it then began to diminiſh, and ſoon ſubſided.

The other Hydrocele which had been relieved by the ſimple puncture, became enlarged from the increaſe of its contents, and in about ſix weeks was of ſufficient ſize to admit of the cure by injection, which was accordingly determined on. The ſurgeon who performed the operation thought proper to uſe a flat trochar, which let out the contents very well, but on throwing in the injection it appeared that the ſac was not diſtended by it; a ſecond ſyringe-full was then

then injected. This alſo did not appear to diſtend the bag, but part of it ran back again, and on opening the ſtop-cock none returned through the cannula, which was therefore withdrawn, and it was evident that great part of the injection had found its way into the cellular membrane of the ſcrotum; by repeated preſſure this was in a great meaſure evacuated through the puncture, but ſufficient remained to produce an obſtinate ſwelling, which continued indeed without much inconvenience, till at length it was diſſipated: the Hydrocele on that ſide however returned, whilſt the other which was completely injected was effectually cured.

I have, as I obſerved, ſince theſe caſes were written, met with many ſimilar, in which I have performed the ſame operation with equal ſucceſs, and without any bad ſymp-

toms; but as the progreſs of them all was very much alike, and I did not think it neceſſary to take notes of them, I ſhall only mention the two laſt, which of courſe are moſt freſh in my recollection.

Case IV.

1804. A gentleman, of a remarkably irritable habit of body, whom, in 1796, I had cured of a Hydrocele of the tunica vaginalis teſtis, after an attempt to cure it by paſſing a ſeton had failed, ſhewed me a ſwelling which he ſaid he had perceived coming on ſeveral months, but now was ſo large as to be troubleſome, and ſometimes painful. I found a tumor about the ſize of a very ſmall orange on the chord, on the ſame ſide as the former Hydrocele, which remained perfectly firm and well. It was evidently a collection of fluid, and I had no doubt of it being a Hydrocele. I explained the

the nature of it to him, and propofed to treat it in the fame manner as I had done the former, only telling him he would probably feel lefs pain in the operation. The injection, however, gave fome uneafinefs from the preffure, and when he got into bed fome pain followed, but in a flight degree; in the evening a good deal of fwelling and tendernefs had taken place. The inflammation continued near a fortnight, at the end of which it fubfided, gradually went down, and the complaint was perfectly cured.

CASE V.

SEPTEMBER 21, 1804, I injected the Hydrocele of a gentleman of the law, which was of confiderable fize, and fituated on the fpermatic chord. I had previoufly affured him that the tunica vaginalis and teftis being perfectly free from any connexion with his complaint, the pain and inflammation would

be very moderate; both, however, were more than I expected, though less than in the common Hydrocele. He had a good night, the next morning the part was swelled and very tender. The fourth day it was distended to the full size it had been of before the evacuation. A few days after it began to subside, but a considerable swelling remained for three weeks: by poultices and proper attention this gradually decreased, and afterwards gave him no further trouble. I saw him again in December following, and the part which the complaint had occupied was scarcely perceptible.

FROM what has been related, I conceive we may fairly conclude that the injection appears to answer as well, and with as much certainty in this species of Hydrocele, as in that of the common Hydrocele of the

tunica

tunica vaginalis: on which so much has been said, and the treatment of both is so similar, that it is unnecessary to make any further observations on it, or indeed to take up any more of the reader's time than for the perusal of a few general remarks which occur on a review of the whole which has been advanced.

We have now considered all the methods which have been usually employed for the cure of this complaint, and I have endeavoured, with fairness and impartiality, to state the respective advantages and inconveniences attending them. The proportional merit however of different remedies can never be exactly determined; few men have opportunities of seeing a variety of remedies repeatedly tried, and perhaps still fewer possess a sufficient share of candour to weigh the merits and defects of each in an equal balance; consequently medical

practice

practice is never settled in any case till it be nearly perfect, or at least, till some one proposed remedy bears no comparison in point of excellence with the rest.

Thus far however I think we may fairly gather from what has been related, that there are some so painful in the execution, and dangerous in their consequences, that they ought to be laid aside. Such appears to me the opening the sac of the Hydrocele, and laying bare the testicle, whether it be done with the knife or caustic; for although the operation of INCISION may have been improved by the ingenuity of some among the moderns, and the whole of the subsequent treatment rendered less violent than former methods, yet as far as my opinion goes, the practice is still severe, unnecessary, and therefore wrong.

The TENT, after having been practised for two hundred years, has been so little

used

ufed of late that we have fcarcely fufficient data to judge of its effects and confequences; the inftances which I have quoted are certainly not in its favour. On the whole, I fhould conceive it would have the principal inconvenience of the feton, that of being a folid body, without an equal extent of fervice. As the operation of it muft neceffarily be more confined, and touch a fmaller furface, the inflammation which fhould follow would be lefs likely to be fpread over the whole cavity of the tunica vaginalis than that induced by the feton, which paffes through the whole of it; and when the Tent is introduced from an opening in the upper part it muft be highly dangerous.

There remain the excifion, the application of the fmall cauftic, the feton, and injections.

The Excision may poffibly be neceffary in fome old cafes, where the coats, from long

long and repeated distention, are become thick and rigid: such, however, very rarely happen; nor can it be necessary in these until the milder methods have been tried and have failed.

With regard to the SMALL CAUSTIC and SETON, they have each so many advocates, that I am far from determining which deserves the preference: but for the reasons given, and which I repeat, the caustic being designed to destroy, and cause to slough away a portion of the scrotum, and the whole of the tunica vaginalis, which produces a painful and offensive ulcer; on the contrary, the object of the seton being to preserve, as much as possible, the natural and perfect state of all the parts, I am inclined to give my vote in favour of the latter.

They are both certainly great improvements, in comparison of all the preceding operations;

operations; yet, as there are objections to be made to both, I esteem myself fortunate, in having been the means of introducing into this country a method, which is not liable to the inconveniences attending either of them; and I flatter myself I have related sufficient instances to prove that the cure by INJECTION really deserves a preference.

There is one merit which I am confident the injection possesses in a very superior degree, that the inflammation which is excited by it is so gentle, that it may be safely used almost under any circumstances, and at any period of life; and if it should not succeed, that is, if the inflammation should not be raised to a sufficient degree to effect the purpose of cohesion, it can do no harm, nor produce the smallest ill effect or inconvenience, provided it is properly performed. The same consequences alone would take place as usually follow the mere letting it

out

out by puncture. There would be a fresh accumulation of water, and we should not be prevented from another trial to cure it, by injection, by the seton, by caustic, or any other method, just as if no previous operation had been attempted.

FINIS.

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POSTSCRIPT.

THE improvements in Surgery, within the present century, are undoubtedly numerous and of considerable importance; but as the art is still progressive it seems the duty of every practitioner to memorise whatever by experience he finds useful, and to endeavour to increase a fund of knowledge which successive observations have gradually accumulated. Yet he who ventures to introduce any method which custom has not familiarised must expect the opposition of habit and prejudice, and after all his pains will not infrequently find his intentions frustrated by misconception or misrepresentation: such reflexions result from the perusal of a treatise

on the Hydrocele not long since published at Edinburgh, which contains some observations on "A late attempt to bring forward "again the use of Injections for the cure of "Hydroceles, which has been long disused "in this country."

This summary definition appears to be intended to characterize a treatise which I had published on that subject, in which the whole of the attempts to bring it forward consists in relating my reasons for using injection in that disease—a description of the means employed—an exact statement of the progress made, and of the cures effected by it; all which are unreservedly laid open and submitted to the opinion of others, with no further claim to credit than that which their observation may allow and their experience confirm.

The motives which induced me to prefer the cure by injection are said by this author to arise from a dread of the operation by incision.

cision. I own I have a dread of it, as I ever ſhall have of giving unneceſſary pain. Having long had the care of a large hoſpital in this metropolis; my practice has been open to public obſervation; and though I have ever moſt ſtudiouſly endeavoured to leſſen the neceſſity of operations; no one, I am confident, will accuſe me of ſhrinking from any which I am convinced will prove advantageous to the patient. Inciſion for the cure of the hydrocele always appeared to me, as was fully explained in my treatiſe on the ſubject, one of the moſt cruel and painful operations in the practice of ſurgery, merely to remove a complaint, which, though burthenſome, is neither painful nor hazardous to life, and may even be prevented from being inconvenient, by occaſionally having recourſe to what is commonly called the palliative cure. It is true that I have not lately ſeen the operation of inciſion, as it has not been performed at St. Bartholomew's hoſpital during the laſt twenty-five years; but I

continue to hear and read ſuch accounts of it as make me ſtill think it my duty to contend againſt it, and I ſhall ever eſteem myſelf particularly fortunate if I have in any degree contributed to introduce a mild method, which, like the diſeaſe it is intended to cure, produces little pain in its performance, and leſs hazard in its conſequences.

In a ſubſequent part of the work alluded to, it is obſerved, that " at one period a " practitioner in this country *got into notice* " by announcing frequent cures of the fiſ-" tula in ano and other ſinuſes by injection, " but that his reputation was not of long " duration, not having been ſucceſsful in " one of twenty caſes which he undertook." How far injections may anſwer in other caſes is foreign to the preſent ſubject, but with regard to their effect on the hydrocele I can aſſure the author, that if *my* reputation were to ſtand on any ſingle baſis, I ſhould have no objection to truſt it on this alone.

The

The motives which could give riſe to ſuch inſinuations, I would willingly impute to the zeal which Mr. Bell feels for the method he has been accuſtomed to, at the ſame time I am much inclined to believe that he would have altered his ſentiments, if he had had any experience of the method of cure by injection. If Mr. Bell had not thought proper to make the experiment himſelf, he needed not to go out of his own neighbourhood to learn its ſucceſs. Indeed this mode of cure has met with a favourable reception from ſo many practitioners, that I ſhould have been induced to paſs over in ſilence an attempt to leſſen its credit, had not this been the production of a gentleman eminent in the profeſſion, and a voluminous writer, whoſe opinions may be ſuppoſed to bias the judgment of the ſtudent, and to attract the notice of thoſe more immediately concerned. Having been thus powerfully aſſailed, I thought it would be almoſt culpably negligent not to perſevere in the ſupport of the

 plan

plan which on good grounds I had recommended, more eſpecially as I continually ſee freſh reaſons to be ſatisfied with what I have advanced. With this view I had thoughts of publiſhing a new collection of caſes, having by me memoranda of at leaſt forty in addition to thoſe already deſcribed, which have ſucceeded under my own care; beſides the hiſtories of many which have been obligingly, and in the moſt flattering terms, tranſmitted to me, from various parts of the world, by gentlemen whom I have not even had the honour of being acquainted with. However, on conſideration that, beſides the original treatiſe, an appendix has been publiſhed in which the former arguments are ſtrengthened with additional inſtances of ſucceſs, and ſince the practice has already ſtood the teſt of inquiry and experience, I think it unneceſſary to trouble the reader with more obſervations on the ſubject, than will barely be neceſſary to refute the objections which have been brought againſt it, to point out the

the errors which have been committed by ſome in their method of performing it, and to add a ſelection of a few particular caſes, principally to exemplify and eſtabliſh ſome circumſtances *of conſiderable importance.* But before I conclude this preface, it will only be taking a reciprocal liberty, and not irrelevant to the ſubject, to make ſome remarks on what Mr. Bell has produced on his favourite operation by inciſion, and his reaſons for thinking that the method by injection "ſhould not be adopted."

Mr. B. in his advertiſement ſets out with a promiſe of improvements in the operation of inciſion, which "he conceives to be important, and that they render the operation eaſy, ſafe, and certain." In what reſpect he has improved the ſafety of it, I cannot clearly comprehend, for though formerly this practice was attended with exceſſive pain, and often accompanied with violent fever, the conſequence was ſeldom fatal. As to the certainty of cure by inciſion, that alſo,

 I con-

I conceive, cannot depend on any improvement of Mr. Bell's, for though it has sometimes failed, as I have known, in general it is allowed to be an operation of certainty; indeed it would be wonderful, if, after dividing the bag, and laying bare the testicle, sufficient inflammation were not excited to perform a cure; I only argue that it is infinitely more than is neceſſary to produce the proper effect. With regard to the eaſe which is promiſed in the operation, I preſume it muſt reſpect the operator, not the patient; for however lightly and dexterouſly the knife be uſed, the nerves muſt ſtill be ſenſible of its edge; the exquiſitely tender coats of the teſticle alſo muſt ſtill be expoſed to the irritation of handling, the contact of air, and preſſure of dreſſings.

I ſhall paſs over the firſt part of Mr. Bell's treatiſe, containing an anatomical account of the peritonæum and deſcent of the teſtis, which, if neceſſary to the knowlege of a diſeaſe that cannot happen till the teſtis is

completely

completely in the ſcrotum, may be found in Pott and other writers on herniæ; to which subject it is perhaps more peculiarly appropriate.

In Mr. Bell's obſervations on the anaſarcous hydrocele, he properly notices, and very truly deſcribes the dangerous conſequences which often are produced by making long ſcarifications on parts loaded with water, and ſays in many inſtances they have cauſed gangrene and ended fatally. It is ſomewhat ſingular that the ſame author, a few pages further, after having deſcribed the anaſarca, which ſometimes takes place from the burſting of a hydrocele, by which the cells of the ſcrotum are loaded with fluid, ſhould adviſe an inciſion to be made through it in that ſtate, and the operation for the hydrocele to be then performed; the paſſage which I ſhall beg leave to lay before the reader is as follows:

"The ſcrotal anaſarca, of a local nature, "has alſo happened from the rupture of a "hydrocele

" hydrocele of the tunica vaginalis teſtis: " when the hydrocele of the tunica vaginalis " arrives at a great ſize, jumping from a " height, or a violent blow or bruiſe, will " readily burſt it; and the water, not find- " ing a paſſage outwardly, muſt neceſſarily " diffuſe itſelf over the ſcrotum. Different " inſtances of this have been met with, two " of which are related by Douglas *; and " different inſtances of it have fallen within " my own obſervation. A ſwelling of a " ſimilar kind is alſo ſometimes induced by " the water of a hydrocele of the tunica va- " ginalis being improperly drawn off in the " operation of tapping. When the orifice " in the ſkin is allowed to recede from the " opening into the vaginal coat, before the " water is all diſcharged, as is apt to happen " when the operation is done with a lancet, " the remainder of the collection diffuſes it- " ſelf through the cellular ſubſtance of the " ſcrotum, an inconvenience that may be al-

* Treatiſe on the Hydrocele, by John Douglas, p. 8.

" ways

" ways prevented, by uſing a trocar for this
" operation, inſtead of a lancet.

" In whatever way the ſwelling is pro-
" duced, the cure ſhould conſiſt in laying the
" tumor ſufficiently open, not only for eva-
" cuating the diffuſed ſerum, but for effect-
" ing a radical cure of the hydrocele of the
" tunica vaginalis.

" Some have imagined that danger may
" enſue from performing the radical cure for
" the hydrocele in this ſituation; but I have
" done it in different inſtances, and no harm
" has ever enſued from it. The patient, in
" ſome caſes, may decline the operation,
" and, in others, his habit of body may ren-
" der it improper; but, when this does not
" happen, few will doubt of its being bet-
" ter to give a patient, in ſuch circumſtances,
" immediate and effectual relief, by perform-
" ing the radical cure at once, than to ſub-
" ject him, in the firſt inſtance, to a good
" deal of confinement, for removing the
" diffuſed ſwelling of the ſcrotum, and to

" leave

" leave him under the fame neceffity as be-
" fore, of fubmitting to the radical cure for
" the hydrocele of the tunica vaginalis."

I confefs that I am among thofe who entertain ftrong doubts of the propriety of operating in fuch a ftate of the complaint, for many reafons; firft, I doubt of " a good deal " of confinement" being neceffary after the burfting; I have feen the accident feveral times. It happened to a gentleman in the city twice, whom I afterwards cured. Another perfon I faw who once burft the tunica by accident, when finding no great inconvenience from the diffufion of the fluid, and that it was a confiderable time before the hydrocele returned, was induced to burft it afterwards on purpofe, by running againft a table in hopes of getting rid of his complaint altogether, yet no ill confequences followed; and another gentleman put himfelf under my care, who met with the accident in London, and was obliged to go two days afterwards into Oxfordfhire, which he

he did without experiencing any material inconvenience. I have alſo ſeveral times ſeen the ſcrotum loaded with water, owing to ſome awkward attempts to perform the palliative cure, but in no inſtance that I have ſeen, did the extratunicated water cauſe much more inconvenience than while it remained within the tunica vaginalis teſtis, and *no* confinement was neceſſary; but in a ſhort time it was abſorbed, and the hydrocele again began to fill.

The next reaſon for my doubting of the propriety of performing the operation in the loaded ſtate of the ſcrotum, may be drawn from what Mr. Bell himſelf has ſaid on the danger of ſcarifications, that is, making wounds in parts ſo circumſtanced.

My third reaſon for being ſceptical on this occaſion, is this. If the anaſarcous ſtate of the ſcrotum ariſes from the fluid which was contained in the tunica vaginalis teſtis, being let out, this bag muſt conſequently be collapſed, and lie in contact with the teſtis.

I believe

I believe every one will allow that it would be extremely difficult, if not impracticable, to perform the incision, or any other operation, on it in such a ſtate. But, ſuppoſing a perſon dexterous enough to do it, would it not, at leaſt, be more prudent to wait till ſufficient water was again collected to direct the inciſion, and to ſerve as a guard to prevent the knife from the poſſibility of injuring the teſticle? On the whole, ſo far from agreeing that few will doubt of its being right "to give a patient under ſuch "circumſtances immediate and effectual relief by performing the radical cure at "once," I am inclined to think there are very few who would not be ſenſible that neither the loaded ſcrotum nor the collapſed tunic are in a fit and eligible ſtate to admit of ſuch an operation. This doctrine was before taught in Mr. Bell's ſyſtem, to which, in my treatiſe on the Hydrocele, I took the liberty to object. Although I had no reaſon to expect that my opinion would have any

weight with Mr. Bell, yet it appears rather extraordinary, that on reflection he should still persist in his former practice; more especially, as afterwards, speaking of the operation of incision, he seems sensible of the difficulty of doing it on the collapsed tunic. His words are, "When the tumour is first "opened below, the water is instantly dis-"charged; and as this is followed by an "immediate collapse of the tunica vaginalis, "the direction in which it should be cut is "not afterwards easily discovered." Now where can be the difference between a tunic collapsed by letting out water by an instrument, or by an accidental bursting, except indeed that by the accident the water not being able to find a passage out, diffuses itself into the cellular membrane under the skin, consequently the scrotum becomes loaded, more untractable, and more unfit to be the subject of an operation. In short, in the one case the collapsed tunic makes all the difficulty, in the other both the loaded scrotum

tum and the undiſtended bag forbid the operation.

Mr. Bell then gives an account of the hydrocele of the tunica vaginalis teſtis, and ſtates that no internal medicine nor topical application has power to ſtop the progreſs of the complaint, which is only to be got rid of by the palliative or radical operation. Speaking of the palliative cure by means of a trocar, Mr. B. obſerves, that "Indeed "the ordinary triangular form of this in-"ſtrument makes it both difficult and un-"ſafe to introduce it; but the trocar, of a "flat form, an improvement which I pro-"poſed a good many years ago, enters with "as much eaſe as a lancet. This inſtru-"ment is repreſented in plate iv. fig. 3; "and, in plates 1 and 2, other forms of "the trocar are delineated: With any of "theſe, an opening may be made into the "tunica vaginalis with perfect ſafety, and "the water with this inſtrument being "much more freely drawn off than by a

"puncture

"puncture with a lancet, by which effu-
"sions are often produced into the cellular
"substance of the scrotum; the mode of
"doing it by the lancet should therefore be
"laid aside."

On this subject I must take the liberty to differ from Mr. Bell. The triangular trocar, according to my experience, is neither unsafe nor difficult to be introduced; by dilating, instead of cutting in its passage it makes nearly a simple puncture, and when the stilet is withdrawn, the circular cavity of the cannula is the most capacious and best possible form for evacuating any fluid, particularly if it should chance to be thick, or ropy, which, though rarely the case in hydroceles, frequently happens in dropsies of the abdomen; and I would wish it to be observed, that the observations I am now making on the operation of tapping are equally applicable in both cases. To the flat trocar, which, if I am not mistaken, was invented by the late Mr. André, I have great objection; it cer-

tainly enters with as much eaſe as a lancet, but it alſo cuts on both ſides like a lancet, by which it is equally liable to open a blood veſſel in the neighbourhood. I have many times been conſulted in caſes where the ſac of the hydrocele has been filled very ſoon after the operation, and has become as large as before the water was evacuated, the contents of which on being let out proved to be principally blood poured out from ſome veſſel which had been opened by the inſtrument in its paſſage, and I have traced the accident from the operation having been done by a lancet or a flat trocar. I do not ſay that by the paſſage of a triangular trocar, a blood veſſel may not chance to be punctured, but it muſt be obvious, that a flat inſtrument which cuts its way on both ſides muſt be infinitely more liable to produce ſuch miſchievous conſequences. But though I conceive there is great reaſon to diſcommend the operation of tapping by the lancet or flat trocar, I cannot agree with Mr. Bell that the

lancet ſhould be wholly "laid aſide," as I think in ſome caſes it is highly neceſſary and uſeful; for inſtance, if there be any doubt or uncertainty concerning the nature of the contents of the hydrocele, if we ſuſpect it to be complicated with an enlarged and diſeaſed teſticle, or conceive that a portion of inteſtine may be protruded into the ſcrotum, or if on any other account we think it unwiſe to plunge in a trocar, the lancet is infinitely the ſafeſt and beſt inſtrument to make uſe of, ſince by that the ſmalleſt ſuperficial puncture may be made through the bag ſo as to determine its contents without any riſque or hazard, and if it prove to be fluid, the ſmall opening may be followed by the introduction of a trocar, through the cannula of which the remainder of the water may eaſily be evacuated. On the whole therefore I would recommend that the flat trocar, but not the lancet, be "wholly laid aſide."

Again Mr. Bell obſerves: "If a common "round trocar is uſed, a ſmall opening

"about

" about a quarter of an inch in length
" should be made through the skin with
" the shoulder of a lancet on that point
" where the trocar is to enter." To this
also, whether the trocar be used in the abdomen or in the scrotum, I cannot help offering an objection, as such division of the skin prolongs the operation, gives additional pain, and is wholly unnecessary. Not long since I was sent for to perform the operation of the paracenthesis on a lady at a distance from the metropolis, which was accomplished without any difficulty by the common round trocar, and a large quantity of water was evacuated; some time afterwards it collected again, and the operation again became necessary. As the nature of the case, which at first was obscure, had been completely ascertained, it was thought more convenient to employ a gentleman in the neighbourhood, who following Mr. Bell's instructions, began first by making an incision through the integuments with a

lancet.

lancet, and then paſſed in a trocar. This proceſs ſo prolonged and increaſed the pain of the operation, that the patient would never ſuffer it to be repeated, but when it became neceſſary to draw off the water again, as it did ſeveral times afterwards, ſhe always either ſent for me, or came to London for this purpoſe. I have thought it worth while to mention this circumſtance, becauſe a ſimple fact ſometimes outweighs much reaſoning.

Mr. Bell then gives an account of the different operations employed by the ancient practitioners for the cure of hydroceles. Speaking of the views of modern operators, Mr. Bell obſerves, " Parts of the human " body, in a ſtate of inflammation, very " readily adhere to each other. Indeed, ſo " eaſily do they do ſo, that ſome art is re-" quired to prevent the adheſion of con-" tiguous inflamed parts, of which every " practitioner muſt have met with examples. " Hence abſceſſes and encyſted tumours

" are more eaſily cured by exciting inflam-
" mation over their internal ſurfaces, after
" their contents are evacuated, than by any
" other means; and, in like manner, it is
" now known, that the hydrocele of the
" tunica vaginalis may be treated upon the
" ſame principles, and with the ſame general
" effects." And again, " The intention,
" then, of every means now in uſe, for the
" radical cure of this ſpecies of hydrocele,
" is, to induce ſuch a degree of inflamma-
" tion on the parts in which it is ſeated, as
" may tend to obliterate entirely the cavity
" of the tunica vaginalis, by making it ad-
" here firmly to the tunica albuginea the
" ſurface of the teſticle." Is it not rather extraordinary that this writer ſhould not be contented with ſuch gentle means as are proved to anſwer his apparent intention, but ſhould think it neceſſary to lay open the whole tumour to produce the effect? And alſo (as will be ſhewn when we come to conſider his directions in the operation of

incision)

incision) should pass a piece of linen dipped in a greasy composition between the coats and testicle? Surely at least there is great appearance of inconsistency in first agreeing that the cure is to be effected by union of parts, and then to lay them open and pass in a dressing, to prevent them from uniting, for though after suppuration, an union may take place, the union by the first intention, which is the rational plan, must certainly be prevented by such treatment.

Mr. Bell observes, "when the sac has "become unusually thick, or hard, it proves "sometimes useful to remove those parts of "it that are most particularly diseased; and "when it has been distended to such a de-"gree as entirely to have lost its tone, re-"moving a part of it may forward the "cure." In answer to this I cannot help remarking that I have succeeded by means of injection in several cases of this description, which will be found at the conclusion of this work; but that to which

I would particularly refer, is No. 1, as it was the first in which I tried the injection, and where the coats of the testis were so large and thick, resembling buff leather, that neither had I nor any person present an idea that adhesion would take place, and in which I have not the smallest doubt, if incision had been employed, that it would have been judged necessary, *on inspection*, to cut away the coat, and probably remove the testicle, which was proportionally enlarged. The diseased appearances in this case, I am confident, from the experience I have since had, and the observations I have since made, (though they much resembled a scirrhous affection of the parts) arose from long continued distention. The complete success I had in this extraordinary case first stamped a value on the method which I recommend, and which so many subsequent trials have confirmed.

After describing the operation by the caustic and the seton, Mr. Bell proceeds to

his

his favourite operation by incision, which I have perused with great attention, but am wholly at a loss to discover the ease which is promised in the preface. It appears to be conducted much in the old way, and likely to produce similar sensations, but I shall beg leave to let the author speak for himself: "The patient being laid upon a table of "convenient height, and properly secured "by assistants, with the scrotum lying nearly "on the edge of the table, the operator, "with one hand, should grasp the tumor "behind, so as to hold it firm, and make it "somewhat tense on the anterior part of it: "With a common round-edged scalpel in "the other, he should now divide the ex-"ternal teguments by one continued inci-"sion from the upper end of the tumor, all "along its anterior surface, down to the "most depending point of it.

"If the incision has been properly made, "the divided scrotum will retract, and the "tunica vaginalis will be laid bare, for the

"breadth

" breadth of about half an inch, from one " end to the other. An opening is now to " be made in the vaginal coat, with a ſharp " pointed biſtoury, juſt at the upper end of " the tumor, where the firſt inciſion com- " menced. This opening ſhould be of ſuch " a ſize, as freely to receive the finger of the " operator; which, being inſerted, the biſ- " toury is to be conducted upon it, and the " ſac divided to the very bottom, directly in " the courſe of the firſt inciſion. By the " previous diviſion of the ſkin, with the " ſcalpel, inſtead of the biſtoury, the ope- " ration is done with more accuracy, and " leſs pain; for the ſcalpel, from its con- " vexity, admits of a finer edge than an in- " ſtrument of any other form is capable of " receiving, and hence it cuts with more " eaſe.

" By making the inciſion of the teguments " and tunica vaginalis together, as in ſome " inſtances I have ſeen done, the operation " may be ſomewhat ſhortened; but the time

" gained

" gained by it is not more than two or
" three seconds, while the incision is apt to
" be ragged and unequal; for when done
" in this manner, particularly when the open-
" ing is made at the under extremity of the
" tumor, as some have advised, the parts
" cannot be kept sufficiently tense during the
" time of making it.

" I have desired that the first opening in
" the vaginal coat may be so large, as easily
" to receive the finger of the operator,
" which ought to be pushed in behind the
" bistoury, without withdrawing the instru-
" ment, as is commonly done. In this
" manner, we shorten the operation, and,
" by giving a free vent to the fluid contain-
" ed in the sac, we prevent it from spread-
" ing and forming vesications in the cellular
" substance of the vaginal coat, and conti-
" guous parts, as it is apt to do when the
" opening in the sac is too small. By mak-
" ing the first opening in the upper end of
" the sac, much trouble and inconvenience is

" prevented,

" prevented, which always occur from mak-
" ing it below. For as I have before re-
" marked, *when the tumor is firſt opened*
" *below, the water is inſtantly diſcharged;*
" *and, as this is followed by an immediate*
" *collapſe of the tunica vaginalis, the direction*
" *in which it ſhould be cut is not afterwards*
" *eaſily diſcovered:* whereas, by making the
" firſt opening above, as the water is there-
" by gradually emptied as the opening is
" carried downwards, the vaginal coat con-
" tinues diſtended at the bottom, till the
" operation is finiſhed.

" With a view to ſave ſome pain to the
" patient, the late Mr. Hunter adviſed the
" inciſion both of the ſcrotum and tunica
" vaginalis, to be only two-thirds of the
" length of the tumor; and others have
" thought even that one half of this is ſuf-
" ficient. But the difference of pain be-
" tween inciſions of theſe different lengths
" is inconſiderable, and not to be regarded
" when compared with the effects which re-

" ſult

"sult from them. When the incision is
"carried the full length of the tumor, the
"operation will succeed, perhaps, in every
"instance, if the subsequent part of the
"treatment meets with due attention; where-
"as, I have known various instances of these
"partial openings being followed with a re-
"turn of the disease.

"It is particularly proper to carry the in-
"cision of the tunica vaginalis down to
"the most depending point of the tumor;
"otherwise, in the first instance, the con-
"tents of the sac will not be completely dis-
"charged, while room will be given for col-
"lections of matter during the cure. It is
"also proper to remark, that, in making
"this incision of the sac, it ought to termi-
"nate at some distance from the testis; for
"I have, in different instances, observed,
"where the vaginal coat has been divided
"near to the testicle, that the inflammation
"was particularly severe. The incision
"being completed, the testicle, covered with

"its

" its tunica albuginea, is brought fully in " view. In ſome inſtances, the teſtis pro-" trudes from the ſurrounding parts; in " which caſe, it ſhould be immediately re-" placed, and covered as quickly as poſſible " from the air; and if no part of the tunica " vaginalis is to be removed, the dreſſing " may be finiſhed directly on the ſac being " opened.

" Unleſs the ſac is diſeaſed, or ſo much " diſtended as entirely to have loſt its tone, " no part of it, as I have obſerved above, " ſhould be removed: but when hardened to " the firmneſs of cartilage, as I have more " than once ſeen, as, in this ſtate, it is apt to " excite pain when applied to the tender " ſurface of the teſtis, it ought to be remov-" ed; and as, in this ſtate, it commonly " ſeparates with eaſe from the ſurrounding " cellular ſubſtance, it is eaſily and quickly " cut away with a ſcalpel or biſtoury."

Thus far I think we have arrived at nothing new or pleaſant; but he proceeds,

" Hitherto

" Hitherto we have been supposing, that the " disease is confined to one side of the scrotum; but, in some instances, as I have remarked above, we meet with a hydrocele in " both sides at once. In this case, the common practice is, to do the operation twice " in all its parts, both in the scrotum and " tunica vaginalis, by laying each collection " open, from top to bottom, by double incision. Some advise both operations to be " done at the same time; but in general, " practitioners are afraid of too much inflammation being induced by this; so that " one side is commonly allowed to heal before the other is opened. In this manner, " the patient is exposed to delay, uncertainty, and to the confinement the consequence of two operations.

" This, however, is not necessary, as the " operation may be done on both sides at once, " with little more pain, and so far as I have " seen, with no more hazard, than in the " usual method of doing them separately.

" The

" The method in which I have done it is
" this:

" After finishing the operation on one
" side, an opening is made into the vaginal
" coat of the opposite testicle, at the upper
" extremity, through the septum scroti; and
" the incision being carried down to the bot-
" tom of the tumor, the cyst is thus equally
" well laid open, the water is completely
" evacuated, and the disease is not more
" liable to return, than by doing the opera-
" tion, in the usual manner, and at different
" times." There is indeed something very
ingenious and novel in performing both ope-
rations at once by dividing the septum scroti;
I must confess I never heard of it before,
but should rather conceive that there would
be some difficulty in stuffing the dressings,
which we shall find are afterwards recom-
mended through the division of the septum,
and I should imagine it would greatly retard
the healing of the other side; so that I can-
not but suspect that the patient would be

most

most severely "exposed to delay, uncertainty, "and to the confinement the consequence "of two operations." However it is a mode of practice which I believe will not be *often* imitated.

Mr. Bell then goes on to shew how the wound should be dressed. "Whether the "hydrocele is double, or confined to one "side, as soon as the incision is finished, if "the testis is found, the wound should be "quickly dressed; and, I think it right to "observe, that, on the manner in which this "is done, much of the success of the opera-"tion at all times depends, more indeed than "is commonly imagined.

"If the vaginal coat is merely wrapped "about the testicle, without the interposi-"tion of dressings, or if the divided sides of "it are immediately united with sutures, as "some have advised, partial adhesions are "apt to take place, before a degree of in-"flammation is produced over the whole, "sufficient for rendering the cure complete.

"In this manner, cavities are left, which
" either fill with pus during the cure, and
" require to be laid open, or they afterwards
" give rise to collections of water, and thus
" occasion a return of the disease, different
" instances of which have fallen within my
" observation. And again, the practice of
" stuffing the cavity of the sore with dress-
" ings, is also a frequent cause of mischief.
" By rubbing, or pressing upon the surface of
" the testis, such a degree of inflammation is
" sometimes induced, as excites much pain,
" inflammation, and fever. But this is al-
" most always the fault of the operator; for,
" in a great proportion of cases, if the dress-
" ings are properly managed, no symptoms
" of violence ever occur.

"After having tried various ways of dress-
" ing the parts, the method I have now long
" pursued, and which, in no instance I have
" found to fail, is this: The testicle being
" properly placed in the newly divided sac,
" two pieces of soft old linen, exactly the

" length

" length of the cut, previously dipped in a
" liniment of wax and oil, are by the help
" of a probe, inserted to the bottom of the
" sac, one on each side of the testicle, be-
" tween it and the vaginal coat, care being
" taken to leave a sufficient quantity of each
" pledgit hanging out of the wound, to ad-
" mit of its being easily withdrawn at the
" first or second dressing; otherwise, if the
" swelling, which afterwards takes place,
" shall be considerable, they may, for some
" days, be entirely covered, and even at last
" removed with difficulty, as I have seen in
" different instances where this piece of at-
" tention has been omitted.

" If the testicle has pushed forward, and
" is with difficulty retained in its situation,
" as it will be *apt to slip out* between the
" lips of the wound between one dressing
" and another, no means should be omitted
" that can, with safety, be employed for
" preventing it, as it cannot afterwards be
" so easily replaced; and, from want of at-

" tention to this, I have known the testicle
" *entirely extruded* from the scrotum, and,
" in one instance, from sufficient pains not
" being taken to replace it, the cure was
" completed with the *testis in this situation*;
" when, instead of being covered with the
" vaginal coat and scrotum, it was covered
" with *scarf skin only*.

" The best method of preventing such a
" misfortune, is, to draw the edges of the
" divided tunica vaginalis and scrotum near-
" ly together, after the testis has been pro-
" perly placed, and the pledgits of oiled li-
" nen inserted; and, in this situation, to se-
" cure them, either with a couple of sutures,
" at proper distances from each other, or
" with slips of plaster, sufficiently adhesive
" for retaining them.

" This being done, the whole scrotum is
" covered with a large pledgit of saturnine
" cerate, or common wax ointment, by
" which the parts are kept much more soft
" and easy, than when covered, in the usual

" way,

" way, with dry lint, at the same time that
" the dressings are much more easily re-
" moved. A cushion of soft tow, with a
" proper compress, is placed over the pled-
" git of ointment, and the whole are retained
" by the T bandage, or common suspensory
" bag. The patient is now carried to bed:
" a quieting draught should be given; and
" he should be enjoined to remain as much
" as possible in the same posture; for much
" motion at this period certainly does mis-
" chief.

" The intention of this operation being to
" induce a *moderate degree* of inflammation
" in the tunica vaginalis and surface of the
" testicle, if the pain, inflammation, and
" swelling, which, in some degree, always
" succeed, do not run to a great height, no-
" thing is to be done for the first two or
" three days after the operation; but, when
" these symptoms become violent, and espe-
" cially when much fever is induced, means
" must be employed to lessen or remove them."

 In

In ſeveral parts of Mr. Bell's tract, as I have ſhewn, he appears thoroughly ſenſible that the adheſive inflammation is all that is required or is neceſſary: yet we find, after all this painful proceſs of getting at the teſtis, and the inflammation which muſt be brought on by handling and expoſing it to the air, he thinks the adheſive inflammation is not to be truſted, but fears it may only take place in parts, and leave hollows which may reproduce the diſeaſe. On this account he thinks it neceſſary to inſert a foreign body between the coat and the teſtis. Surely by this all idea of adheſive inflammation is given up, and ſuppuration muſt be the conſequence.

Mr. Bell proceeds in his account, p. 106, "In moſt caſes, the inflammation of the teſ-"ticle does not riſe higher than it does in "the ſimple hernia humoralis from gonor-"rhœa; and it gradually ſubſides as the ſup-"puration advances. The abatement of the "inflammation is alſo aſſiſted by continuing

"a cool

" a cool diet, the occaſional uſe of opiates,
" and keeping the belly open.

" Often in two days, and always by the
" end of the third, I remove all the dreſſ-
" ings, except the pledgits inſerted between
" the teſtis and tunica vaginalis. This is
" one important advantage we derive from
" covering large ſores with pledgits of oint-
" ment. The dreſſings are eaſily removed
" at any period; ſo that, without waiting
" for a plentiful ſuppuration, as is com-
" monly done, the patient may, at any time,
" be relieved from that diſtreſsful uneaſineſs,
" of which all thoſe complain, in whom the
" firſt dreſſings are ſeveral days in being
" taken away. They are always rendered
" ſtiff and uncomfortable by the blood diſ-
" charged upon them after the operation;
" and the matter at firſt ſecreted being thin
" and acrid, I have, in various inſtances,
" ſeen, when the dreſſings have not been re-
" moved for ſix or ſeven days, and in ſome
" caſes even in leſs, that the whole contigu-

" ous parts have been excoriated by the acri-
" mony of the matter alone, and by which
" more uneasiness has been induced during
" the course of the cure, than by any cir-
" cumstance connected with the operation:
" Nay, in some, the inflammation induced
" in this manner has an obvious influence
" on that of the testicle, and tends to render
" it much more severe than it otherwise
" would be.

" On some occasions, at the first dressing,
" and always at the second or third, the
" pledgits inserted between the tunica vagi-
" nalis and testicle come away; and, when-
" ever this happens, they should be renewed.
" It is also proper to renew them daily, *for*
" *the first fourteen or fifteen days after the*
" *operation*; not, however, of the same
" depth as the first, as, during the latter part
" of the cure, it proves sufficient, if they are
" merely inserted so far as to prevent the di-
" vided edges of the tunica vaginalis from
" adhering to the testicle before the adhesive
" process

" process has taken place in the parts more " deeply seated. To this point, I must ob- " serve, the most particular attention is ne- " cessary; for, when this mode of operating " fails, that is, when the disease returns, it " is, almost in every instance, from this pre- " caution being overlooked."

In this place perhaps it would be not improper to make some apology for introducing such long quotations. I can only say, they appeared to me necessary for the exposition of certain facts; and if quotations are made, they should be made fully and fairly. The passages which have been transcribed need no comment, they sufficiently point out the tediousness, the pain, the hazard and difficulty which attend on every part of this mode of cure.

After more directions and observations on the manner in which he conceives the cure is performed, Mr. Bell concludes with saying, " In some the cure is complete in three " weeks, I have known it in less, while in

" others

" others it runs on to the fourth, fifth, and
" in a few cafes to the fixth week." Mr. Bell might have extended his latitude to fix months, which I have known employed in completing this method of cure, under two furgeons of eftablifhed character in this country; but take it as it is defcribed with all its circumftances, and let any one contraft it with the fimple operation of throwing in an injection, which produces fometimes only a flight pain and irritation during a few minutes, and frequently never gives any trouble afterwards; and though the pain is fometimes rather more confiderable, it is always of fhort duration. The day after the operation, in general, the patient may get up, change his room, and often in ten days or a fortnight, be free from all confinement. In fhort, let any practitioner read the account of the incifion as given by one of its moft fanguine admirers, and the cafes which are fubjoined of the cure by injection, which, confirmed by the practice of others, prove, that it is at leaft equal in certainty

certainty of producing a cure to the operation of incision, or any other which has been recommended, and then let him determine which deserves the preference.

Here I would willingly conclude, and trust the decision to what has been said, but really Mr. Bell in the latter part of his book has introduced such assertions on the cure by injection, that it becomes absolutely necessary to take notice of them; I hope therefore not to be charged with unnecessary prolixity, if I make some further comments.

After some observations on the comparative advantages of the caustic, seton, and simple incision. Mr. Bell says, "I have seen all "the three produce troublesome symptoms, "such as tension of the abdomen, inflam- "mation, and fever. But from much obser- "vation, I can without hesitation say that "the seton is more frequently productive of "these than either of the others."

Having adopted a better method, I do not stand up for the excellence of the seton. It

certainly

certainly produces more inflammation than is neceſſary, but I do not think it liable to all the objections which Mr. Bell has brought againſt it, particularly that it does not allow of the examination of the teſticle. I inſiſt that when the water is let out the teſticle may be accurately examined, as well, and in my opinion much better, by the touch, than by the ſight. I ſhould be glad to be informed what appearance *on inſpection* of the tunica albuginea, for that is all that can be ſeen, denotes the exiſtence of ſcirrhoſity or diſeaſe; which cannot be aſcertained by the tactus eruditus of an experienced ſurgeon.

Mr. Bell obſerves, p. 119, "I have been "concerned in different caſes, where the "moſt experienced ſurgeons were at a loſs, "to determine the real nature of the diſeaſe; "that is, whether the ſwelling in the ſcro-"tum was a ſimple hydrocele of the vaginal "coat, or an effuſion into that bag produced "by a real ſarcocele. In all ſuch caſes of "doubt, the ſurgeon ſhould proceed as if

" the tumor was a real farcocele. If, on
" laying open the fwelling, the tefticle is
" found difeafed, that is, if it is in fuch a
" ftate to require extirpation, it fhould be
" removed immediately." I am forry to advance any thing which appears fo directly oppofite to Mr. Bell's directions, yet cannot help giving it as my decided opinion, that, in all fuch cafes of doubt, the furgeon fhould not proceed as if the tumor was a real farcocele, but fhould ufe fuch methods as often remove a hardnefs which appears to be fchirrous. It is time enough to think of laying open and extirpating when every method has been tried to foften, and leffen the complaint, and has failed. I have fucceeded in reducing many enlarged teftes which have been, in a moft critically doubtful ftate; which, if they had been expofed to examination by the view, I have not the fmalleft doubt it would have been thought neceffary to extirpate. It is further obferved by Mr. Bell, that " In feveral inftances of this kind,

" where, by different practitioners, a mere
" collection of water was expected without
" any other affection, the testicle has been
" found to be so much diseased, as to render
" immediate extirpation proper. Now, if
" in such circumstances a cure had been at-
" tempted by the seton, the testicle would
" have been allowed to remain exposed to
" the irritation produced by the cord, which
" probably would have induced very trou-
" blesome and even alarming symptoms; for
" we know that every symptom of a scir-
" rhous tumor, is uniformly rendered worse
" by irritation."

In several instances also where hydroceles have been complicated with an enlargement and hardness of the testis which have had the appearance of scirrhosity and have been deemed scirrhous, I have made use of injection; and have cured the hydroceles without producing any alarming or even troublesome symptoms, and afterwards the testicle has become softer and nearly of its natural size.

In

In these cases I confess I would not have ventured to use the seton, incision, or any other remedy for the cure of the hydrocele, having no doubt but that the great degree of inflammation produced by contact or exposure would have aggravated the disease, and probably brought on irreparable mischief; but the ease with which the injection operates emboldened me to try it; and now from repeated observation I can positively assert that the *apparent scirrhosity* which often accompanies hydroceles of long standing, is often nothing more than a thickness of the coats of the testicle from long distention, and an enlargement of the gland itself from pressure, which being removed, the parts become thinner, softer, and gradually assume nearly their natural state. This was the fact, which I deemed important, and which I presume will be proved and elucidated by some instances inserted among the subjoined cases.

Mr. Bell remarks, that "It sometimes "happens, as will be more particularly no-

"ticed

" ticed in the next section, that a portion " of gut is contained in the upper part of a " hydrocele. Of this I have met with *several* " *cases*, in some of which, *no suspicion* was " entertained of it, till the sac was laid open, " although in two of them the water had " previously been drawn off with a trocar." I am really surprised at the foregoing assertion, conceiving that any judge of the complaint could readily distinguish by the feel if any thing were protruded from the abdomen; of which, if there be room for the smallest suspicion, a lancet, as I before observed, will be the best instrument to be used, and a superficial scratch may be made to determine the nature of the contents, which, if it prove fluid, may be safely evacuated by passing a probe through the opening, or rather a slender flat cannula, one of which I have caused to be made for this purpose of a conical form, and terminating sufficiently fine to pass through a small aperture; when the bag is thus emptied and in a flaccid state, such a

circumstance

circumſtance as a portion of inteſtine coming down by the ſide of the ſpermatic proceſs, muſt I ſhould conceive be obvious to every one, in any degree acquainted with the natural ſtate of theſe parts.

The laſt objection which Mr. Bell makes to the ſeton is this, " In other inſtances, " the water of a hydrocele is contained in " hydatids *; a circumſtance which cannot " be diſcovered previous to the opening of " the tumor: and as it will be readily ad-" mitted, that the method of cure by ſeton, " is ill ſuited for diſcharging hydatids, this " of itſelf is a material objection to the " practice. So that, although the ſeton, in " every other reſpect, ſhould be equally eli-" gible with the ſimple inciſion, which, for " the reaſons formerly given, I think it is " not, yet the three laſt objections I have

* " Thoſe who doubt of the exiſtense of hydatids in " caſes of hydrocele, as ſome have done, will find different " inſtances of them recorded in Morgagni de cauſis et ſedi-" bus Morborum."

" adduced against it, seem to be sufficient
" reasons for setting it aside."

No one will question the authority of so respectable an author as Morgani, but he is a recorder of curious and extraordinary facts; Had the complaint been frequent, it must probably have come under Mr. Bell's immediate notice, and if such cases had occurred in his practice it is to be presumed that he would have produced them on his own authority. In upwards of thirty years experience, I do not recollect to have seen one case of the kind. From all which it is clear that the existence of hydatids in a hydrocele is so very uncommon, that the objection which is made to the seton on this account appears to me not "material," but frivolous.

Mr. Bell then considers the cure by caustic, of which he speaks favourably, but still greatly prefers the incision, on the subject of which he again dilates. "I may farther mention "one important advantage of this operation "in addition to what I have said of it, that

" it may be confidered as an abfolute fecu-
" rity againft a return of the difeafe." Notwithftanding this pofition I feel myfelf obliged to fay, that, according to my experience, the operation of incifion is not always fuccefsful; two inftances of its failure will be related (Cafes XIX and LIV) both of which were afterwards cured by injection.

As another argument in favour of incifion, Mr. Bell obferves, that " for thefe laft
" twenty years fcarcely any cure has been
" attempted through the greateft part or
" perhaps the whole of Scotland but by in-
" cifion." I cannot perceive what this is calculated to fhew, except it be the fource whence Mr. Bell's deep-rooted prejudice in its favour is derived. After beftowing many encomiums on the operation of incifion, Mr. Bell concludes with, " For my own
" part I now confider it as a matter of
" nearly the fame fimplicity as the treat-
" ment of a common abfcefs in any part of
" the body." This obfervation proves to

 what

what degree a man may be biassed in favour of that which has once taken possession of his mind, and yet that it should so quickly follow the description of the operation, and its consequences, is rather astonishing.

I must presume that the patients would be sensible of a very material difference between the exposition of the tender coats of the testicle, in the manner which has been related, and "the treatment of a common abscess." However I sincerely congratulate my countrymen in North Britain, that the candour and good sense of several practitioners in Edinburgh have led them to break through a prejudice and custom confirmed by twenty years practice, by making trial of what was proposed as an easier cure; and I have received much pleasure from being informed that it has answered to their satisfaction *.

After

* The observation of Dr. Duncan, in his preface to the last volume of his Medical Commentaries, is so strong a confirmation of what I have asserted concerning injections, and comes from such respectable authority, that I should be

After touching lightly on Mr. Else's method of cure by the small caustic, Mr. Bell proceeds to give his animadversions on the cure by injection, and having stated that it was formerly practised, produces reasons why it came into disuse. "The injection either "excited severe pain, on being first thrown "in, and was succeeded by violent inflam-"mation, and this, in some, by distressful "collections of matter; or the cure did not "prove permanent. In a few cases, the dis-"ease returned almost immediately, that is, "in the course of two or three weeks; but

be wanting to myself not to insert the passage. "But be-"sides hypotheses still requiring further confirmation, the "reader will find in the present volume many important "practices recommended on the solid basis of extensive "experience, which have not perhaps been hitherto "adopted so generally as they deserve; these it is unne-"cessary, and would perhaps be improper to particularize. "We must, however, be permitted to say, that, in our "opinion, the mode of operating in the hydrocele which "has proved so successful in the hands of Mr. Earle, can-"not be too soon adopted by every practitioner who is "anxious to consult the ease and safety of his patient."

"this was not frequent. For the most "part, the cure appeared to be complete, "and continued to be so, till at some distant "period, to the great disappointment both "of the patient and surgeon, a recurrence "of the swelling was observed. In some, "this happened in five or six months; in "others, not till three or four years had "elapsed." Violent symptoms are certainly likely to be caused by violent remedies; but this cannot by any means apply to the injection recommended in my treatise, which is so diluted as to produce a gentle irritation, and nothing more. No violent inflammation, no distressful collections of matter ever take place after the use of it; of these truths abundant proofs may be collected from the cases which I have produced, and from the practice of others.

With regard to the return of the hydrocele, it is allowed that if not cured it certainly will return; but Mr. Bell must know that the return is evident in *a very short time*,

as

as is always the caſe after the palliative cure. But if any one ignorant of the nature of the diſeaſe ſhould object to this, and ſay duration of time is neceſſary for the confirmation of the cure, I anſwer that caſes of this private nature can very ſeldom be brought forward, but that proofs of cure are as readily to be produced after the injection as after any other operation for the ſame purpoſe; and if it were neceſſary, I could quote ſome of thoſe on whom I firſt practiſed this method. Particularly I am at liberty to mention the gentleman alluded to in Caſe No. 2, on whom it was performed in 1787, whom I have frequently the pleaſure of ſeeing; and inſtances of *many* others I could produce of an early date, who continue perfectly well. Mr. Bell's obſervation, that " In hoſpital practice patients are ſeldom heard of after being diſmiſſed," I cannot help thinking erroneous and nugatory, becauſe if they were not cured they certainly would apply again, as they continually do after the palliative cure.

Of

Of all those on whom I have performed the radical cure by injection ... have returned with a reaccumulation of water on the same side, though some have applied with a new hydrocele on the other side, and many for other complaints, by which means I have had frequent opportunities of examining the seat of their former disease. But these instances of duration are wholly unnecessary, because every one knows, who knows any thing of the subject, that if the cure of a hydrocele is incomplete, the water begins to collect immediately. I am well grounded in asserting that, in general, if it does not shew itself in three weeks, or sooner, provided the distention arising from the operation has subsided, there remains no doubt of the cure being complete. Nothing can be more simple than the explanation of this fact; either the cavity which held the fluid is closed by the operation, or it is not; if the means employed to produce the adhesive inflammation have been partial, or insufficient for the pur-

poſe, and conſequently a cavity ſtill remains, there is nothing to prevent a reaccumulation of fluid; but this muſt happen immediately, or not at all, becauſe, if the adheſions have taken place, and are ſufficient to prevent the return of the fluid in the firſt inſtance, the additional ſtrength and firmneſs, which they are continually acquiring, muſt prove an effectual barrier againſt any future collection.

Mr. Bell's aſſertion therefore, page 153, "that although in many a complete cure is "obtained (by injection), the diſeaſe returns "early, that is in the ſpace of a few weeks "in a ninth or tenth part of all on whom "the operation is performed, and in five of "eight or nine at ſome uncertain period in "future," I muſt take the liberty poſitively to contradict; and however harſh my comment on this paſſage may appear, truth obliges me to affirm that it is contrary to the nature of the diſeaſe, diametrically oppoſite to what can be proved, and, ſo far as I am

authoriſed

authorised by my own practice to assert absolutely without foundation.

Mr. Bell then gives an account of the method of injecting nearly as described in my treatise, but I must observe that in my opinion he has made an alteration greatly to the disadvantage of the operation by introducing a flat trocar instead of the round one which I have recommended. The flat trocar, I mean those which have the split cannula, are particularly improper in these cases, as their stilets, or cutting points, being rather larger than their cannulæ, the opening they make will not confine the injection, but suffers it to trickle down by the sides of the cannulæ; but, without exception, I think all flat trocars are bad for this purpose, as a division being made by the cutting sides of the stilets to make way for their cannulæ, when they are withdrawn the cannulæ are unconfined, and liable to constant motion; whereas the round cannula which follows a simple puncture, being firmly embraced by the opening in the scro-

tum

tur and tunica vaginalis, maintains its situation properly and steadily, and suffers none of the injection to escape. I have more than once, as will be noticed, (Cases XLVIII, XLIX, and L) known the operation not succeed from the use of the flat trocar, and think it must be very liable to fail from that cause.

Mr. Bell also, though he so much disapproves of the operation, has given an elegant plate of the elastic bag and stop-cock as recommended in my treatise. Plates are ornamental to a work, otherwise so simple a machine perhaps might have been described by words; but I must take this opportunity of observing, that I have long since discontinued the use of the stop-cock, as, not being well able to spare a hand during the operation, to turn it, I found it awkward and embarrassing. A pipe, one end of which is made to fit into the cannula of a trocar, the other adapted to receive the neck of an elastic bottle, with a valve or ball in the center of the pipe to permit the entrance and prevent

prevent the exit of the injection, will be found infinitely more convenient and useful.

Perhaps if Mr. Bell had bestowed a little more consideration on the subject, or had made any trial of the instrument, which he has thought proper to delineate, he would have discovered the inconvenience of it, as I have done; but thus it frequently happens that practical defects are handed down, and placed out of the reach of their original authors, to rectify or amend; for there is an error to which compilers of systems are too often liable, that while eagerly engaged in collecting and appropriating the thoughts of others, they sometimes forget to think for themselves.

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